OMNISTIM® 500A

Electrotherapy System

User Manual

Revised 070101
Part No. 290500A

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OMNISTIM® 500A

ACP manufactures a premier line of electromedical devices to assist health care professionals in the rehabilitation of their patients. The ACP product line includes Pain Control Systems, Muscle Stimulators, Interferential Therapy, and Ultrasound devices. Our **MEGAPULSE**®, **NEUROPROBE**®, **OMNISTIM**®, and **OMNISOUND**® represent the most recent world wide technological advances available for therapeutic application of electromedical devices.

ACP is internationally recognized for its contribution to research in the development of medical applications for therapeutic rehabilitation. The Company sponsors and conducts research at leading health care institutions and major universities throughout the world. This new medical frontier holds great promise and opportunity, which will result in substantial advancements in the health care industry and for ACP.

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INDICATIONS & CONTRAINDICATIONS

CAUTION: ***Federal law restricts this device for sale or use by, or on the order of, a Practitioner licensed by the laws of the state in which he/she practices to use or order the use of the device.***

Please note that Accelerated Care Plus cannot provide medical advice. If you have specific medical questions, please contact your healthcare professional.

Indications

The **OMNISTIM**® 500 is indicated for:

1. Symptomatic relief and management of chronic intractable pain and as an adjunctive treatment in the management of acute pain, post surgical pain and pain associated with post-traumatic injury.
2. Relaxation of muscle spasms.
3. Re-education of muscle action.
4. Prevention or retardation of disuse atrophy.
5. Immediate post surgical stimulation of calf muscles to prevent venous thrombosis.
6. Increased local blood circulation.
7. Maintaining or increasing range of motion.

Electrical muscle stimulator devices should be used under medical supervision for adjunctive therapy for the treatment of medical diseases and conditions.

Contraindications

1. Transcutaneous electrical stimulation, or powered muscle stimulators should not be used on patients with cardiac demand pacemakers and/or implanted defibrillators.

2. Never connect lead wires to the power line or electro-surgery equipment. Use only the lead wires recommended or approved by the manufacturer.

   NOTE: *There is no contraindication to the application of Transcutaneous Electrical Stimulation or Powered Muscle Stimulation over metal implants.*

Adverse Reactions

Skin irritation and burns beneath the electrodes have been reported with the use of powered muscle stimulators.

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Please note that Accelerated Care Plus cannot provide medical advice. If you have specific medical questions, please contact your healthcare professional.

Warnings

- Do not operate this device until the User Manual, including all Indications for Use, Contraindications, Warnings and Precautions, have been carefully read and understood.
- Operation of this device or placement of lead wires, probes, pads and electrodes in close proximity (less than 5 feet) to an operating shortwave or microwave diathermy unit may produce instability in the device output or burns at the treatment site. Lead wires and device can pick up the magnetic field output of the diathermy and through induction convert it into an electrical field, transmit the energy into the patient increasing the current density at the electrodes of applicators. Since the patient may not feel the 27 MHz frequency, they lack the protective sensation and tissue burns could result. Short-wave field could potentially damage or reset medical devices in close proximity to the drum applicator.
- Treatment should not be applied over the carotid sinus nerves, (located in the anterior neck triangle), including, stellete ganglion, vagus nerve, or laryngeal or pharyngeal muscle. Particular care should be taken for patients with a known sensitivity to the carotid sinus reflex, as carotid sinus stimulation may alter blood pressure and cardiac contractility.
- Do not apply treatment over testes, heart or eyes. Thermal effects or electrical stimulation may affect organ function.
- Do not apply over or in close proximity to active cancer (except in terminal / palliative / hospice care), as therapy may increase blood flow to the tumor.
- Treatment should not be applied when high fever is present, over swollen, severe infection, (osteomyelitis, sepsis, tuberculosis, etc.), or inflamed areas or skin eruptions, (e.g., phlebitis, thrombophlebitis, varicose veins, etc.).
- Do not apply over the lumbar or abdominal region, or over the uterus during pregnancy (to prevent uterine contraction), or during menstruation as therapy may temporarily increase menstrual flow.
- The long-term effects of chronic electrical stimulation are unknown. To date, the only negative effects reported are based on skin and tissue irritation under the electrode sites associated with chronic estim use.
- Stimulation should not be applied transthoracically in the vicinity of the heart, as introduction of electrical current into the heart may cause cardiac arrhythmias.
- Treatment should not be applied transcranially.
- Stimulation should not be applied to patients connected to patient monitoring equipment, as the stimulation may have an affect on the proper operation of the monitoring equipment.
- Stimulation should not be applied directly over external or implanted stimulator systems, such as shunts, infusion pumps, stomach, bladder, brain, spinal cord, bone growth, or other implanted stimulators.
- Neuromuscular electrical stimulation (NMES) should not be applied directly over or in close proximity to Deep Vein Thrombosis (DVT), as it activates the muscle and causes muscle contractions. This should be avoided in tissue following an acute DVT when the thrombosis is not completely resolved. Therapists should follow the guidelines provided by the referring physician on recommended activity level and modality use. If the patient is not permitted exercise, NMES therapy should be avoided. Generally, NMES over a DVT of six weeks or less should be avoided altogether.

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Precautions

- Application site and settings should be based on the guidance of the prescribing practitioner.
- All equipment and accessories should be kept out of the reach of children or unqualified persons.
- Do not connect this device to any wall outlet that has not been properly grounded, or to any electrically non-isolated medical device.
- Use only ACP specified accessories and/or supplies with ACP devices. Do not use any power cords, or power supplies, other than the ones provided or specified for this device. Use of any other power supply could seriously damage the device and will void the warranty.
- When cleaning the device, never immerse them or wash them with water. See the Infection Control section in this manual for cleaning instructions. Devices should not be submerged in water or other liquids.
- Failure to follow the manufacturer's prescribed maintenance for this device may lead to device failure and transient or unreliable performance. State and federal survey and JCAHO require all equipment to be maintained and calibrated according to the manufacturer recommended schedules.
- A potential electric shock hazard exists once the device outer casing has been in part, or fully, removed. Only qualified service personnel should perform Service and repairs. Warranty will be voided if the outer casing has been removed or tampered with.
- Do not apply over areas of hemorrhage or active bleeding. Modalities should be applied following cessation of hemorrhage or active bleeding as they may promote increased circulation and inhibit coagulation.
- Inspect and cleanse the skin prior to application. Following treatment check the skin for evidence of irritation or burns, and if present, treat as appropriate. If the patient has, or complains of, skin irritation following treatment, shorten the treatment time on the next treatment session, or use an alternative type of therapy or electrode placement.
- Gradually increase the output intensity/power to required dose or patient tolerance while monitoring the device display.
- Caution should be taken with patient exhibiting psychological or physical hypersensitivity to the therapeutic treatment. Several attempts should be made to place them at ease so that their confidence and cooperation can be gained during the treatment.
- The treatment area should be checked from time to time, and if there is evidence of, or if the patient complains of, pain during treatment, adjust the output downward until it is tolerated by the patient. If the patient continues to complain of pain, discontinue the treatment and shorten the treatment time on the next treatment session, or use an alternative type of therapy or electrode placement.
- Do not apply treatment directly over/under hot or cold packs. Caution is recommended when treatment follows the application of hot or cold therapy, which may alter the patient's sensation. Application of thermal agents over areas of impaired circulation should be performed with caution as the circulation may be insufficient to heat or cool the tissue, altering the patient's perception of warmth and pain, and burns or tissue necrosis may result from subsequent treatment.
- Caution is recommended when treatment follows the application of medicated patches, salves, or creams which may alter the patient's sensation. If there is a medical necessity to perform such treatments, these patients should be monitored diligently during application. The presence of electrical stimulation may be altered by the presence of these materials on the patient's skin.
- Caution should be used over areas of body where circulation is impaired, or which lack normal sensation. Absent or diminished sensation should be avoided or, if unavoidable, treated with caution. Establishment of acceptable intensity levels for desensitized areas may be related to the intensity levels tolerated on normal skin in opposite or related body parts.
- Caution should be used in the presence of recent surgical procedures, fractures or healing bone and soft tissue when muscle contraction may disrupt the healing process.
- Caution should be used for persons with suspected or diagnosed heart problems.

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- Caution should be used for patients with suspected or diagnosed epilepsy.
- Electrodes should not be placed in direct contact or in close proximity (one inch or less) of each other during treatment. Electrodes placed in contact or in close proximity can lead to high energy density and skin burns under or between the electrodes.
- Care should be used when removing electrodes after treatment, in order to minimize the potential for skin tearing. Skin should be inspected after removal of electrodes for any signs of tearing or irritation.
- Do not connect the stimulator to any electrical equipment for combination therapy except the Omnisound® family of ultrasounds.
- ACP does not recommend the use of the Denervated Muscle or Low Intensity DC protocols, and does not supply the DC or Microcurrent adapter required for use with these protocols. If this device is used with a DC or Microcurrent adapter, follow the specific treatment guidelines, indications, contraindication, warning and precautions specified in the DC or Microcurrent adapter manual. Do not use any protocols requiring the use of the DC or Microcurrent adapter without first having plugged the adapter into the appropriate channel.

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THE OMNISTIM® 500

Delivery of the OMNISTIM® 500

Upon receipt of your **OMNISTIM**® 500, inspect the shipping container and contents for any obvious or concealed damage. All ACP products are packaged carefully for rapid, safe delivery. We guarantee delivery in perfect condition to the postal or delivery services. However any damage or loss incurred during transportation or delivery is the Postal or Delivery Company's responsibility. If damage or loss to the product and/or container is obvious or suspected, appropriate notation must be made on the signed freight bill at the time of delivery. All damage claims should be promptly filed with the delivering carrier and must be initiated by the addressee where the package was to be delivered. Retain the original shipping container and inserts for validation of damage claim or use at a later date.

Unpack and check all accessories. A list of enclosed accessories is provided with each unit to assist you in identification of the type and number of accessories.

NOTE: ***The purpose of this manual is to acquaint you with the OMNISTIM® 500's operating features and functionality. Please read the manual carefully before attempting to operate the OMNISTIM® 500. If questions remain unanswered, contact your ACP sales representative or call 1-800-350-1100. Outside the USA call 1-775-685-4000.***

Introduction

The **OMNISTIM**® 500 is designed to provide Interferential Current Therapy (IFC), Medium Frequency Alternating Currents (MFAC), Low Voltage Pulsed Current (LVPC) and High Voltage Pulsed Current Therapy (HVPC). Its two separate generators produce medium frequency (2000, 2500, 4000 or 5000 Hz) alternating current in continuous or modulated modes. Two isolated output circuits with independent intensity controls are provided. The output of each circuit is easily determined in milliamps through the display screen. The digital timer allows the operator to select the length of the total treatment time and to monitor the time remaining in minutes.

The **OMNISTIM**® 500 offers Frequency Difference (FD) and Full Field (FF) Interferential Current Therapy. An interferential vector scanning mode can be turned off or on for stationary or continuous movement of the interferential field.

The **OMNISTIM**® 500 MFAC and LVPC modes with fully adjustable ON and OFF times and ON and OFF ramps provides a wide variety of uses for muscle re-education and muscle spasm reduction protocols for innervated muscle.

The **OMNISTIM**® 500 provides High Voltage Pulsed Current (HVPC) on one channel. Continuous or surged operation with fully adjustable ON and OFF times and ramps allow applications of HVPC therapy. Increasing circulation, pain control and muscle re-ed can be set up in this mode.

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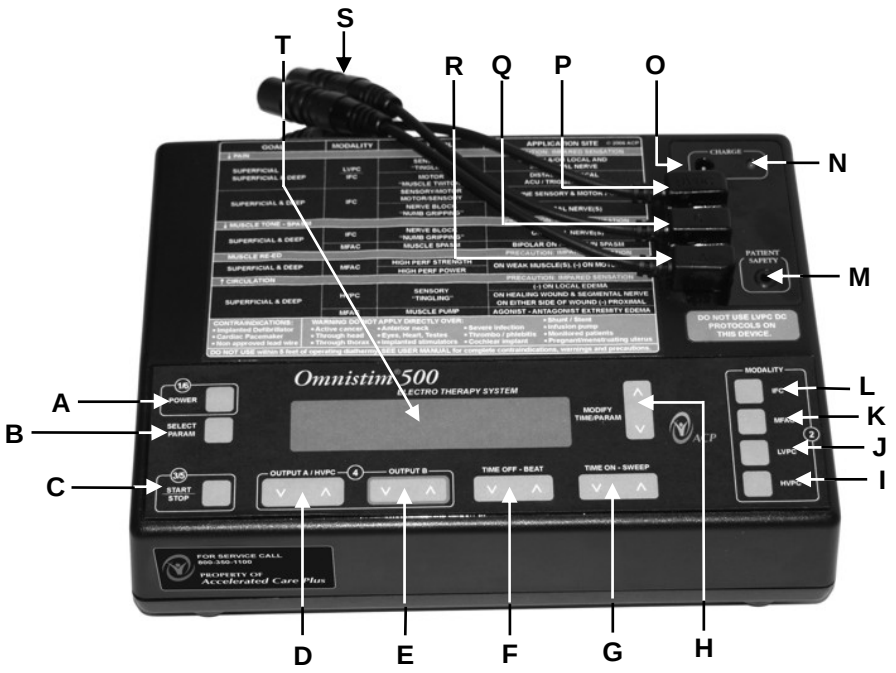
Controls and Functions



A. Main power switch. Press for power ON, press again for power OFF. The display illuminates with SELECT MODALITY/PROGRAM.

B. Parameter select button provides adjustment of stimulation parameters, screen contrast, audio on/off and button speed and sensitivity. Press to enter SETECT mode. It is possible to adjust most stimulation parameters at any time during treatment.

C. START/STOP Set output button. Having selected the type of treatment and program press to set the output or start or stop the treatment. START/STOP also cancels the SET mode.

D. Increase/Decrease OUTPUT A. Press rocker switch to the right to increase output current. Press to the left to decrease output current.

E. Increase/Decrease OUTPUT B. Press rocker switch to the right to increase output current. Press to the left to decrease output current.

F. Increase/Decrease Beat frequency or TIME OFF Press rocker switch to the right to increase the duration of the TIME OFF period; press to the left to decrease the duration of the TIME OFF period during MFAC, LVPC or HVPC modes. Press rocker switch to the right to increase BEAT (or base) frequency; press to the left to decrease BEAT frequency during INTERFERENTIAL modes.

G. Increase/decrease SWEEP frequency or TIME ON. Press rocker switch to the right to increase duration of TIME ON period; press to the left to decrease the duration of the TIME ON period during MFAC, LVPC or HVPC modes. Press rocker switch to the right to increase SWEEP (or spectrum) frequency; press to the left to decrease SWEEP frequency during INTERFERENTIAL mode.

H. Timer/parameter switch. Increases/decreases treatment time or changes parameters in set mode.

I. Select single channel HVPC protocol when pressed.

J. Selects LVPC protocol when pressed.

K. Selects MFAC (Russian style stimulation) protocol when pressed.

L. Select Interferential (IFC) protocol mode.

M. Patient Safety Input Switch

N. Charging/line operation indicator LED.

O. Battery charger input jack.

P. Output for HVPC.

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Q. Output for channel "B" in IFC, MFAC and LVPC modes.

R. Output for channel "A" in IFC, MFAC and LVPC modes.

S. Lead wire adapter – 3 pin.

T. Super twist LCD graphics display for all functions and parameters. The graphics screen allows display of:

- Modality selected
- Program selected
- Time remaining
- Bar graph for timing
- On-Off time, delay and ramps
- Beat frequency and sweep ranges
- Sweep rate and modulation selection
- Burst or pulse frequency
- Phase duration and interphase interval
- Output voltage or current
- Vector selection
- Battery condition
- Display contrast
- Button speeds and delay

Factory Settings

The **OMNISTIM**® 500 comes with the following factory settings:

Button Speed, A & B Output	87
Button Speed, Beat, etc.	93
Button Delay, all	40
Audio	ON
Screen Contrast	5

These are generally suitable for most clinicians. To adjust these default settings proceed as follows:

1. When the main screen comes up and states "SELECT MODALITY/PROGRAM" push the SELECT PARAMETERS button repeatedly to display the factory settings. You will then be able to adjust the selected factory settings by pressing the TIME/PARAMETER up/down button. The new settings will be saved from use to use as long as you do not remove the batteries or allow a full discharge of the unit.
2. The screen contrast sets the appropriate viewing angle for easy screen legibility.
3. The button speed for output A & B sets the speed at which output will increase and decrease when you push the buttons. This should generally be set at a slower speed (80 - 90) so as not to startle the patient.
4. The Button speed BEAT Etc. controls the scrolling speed of all of the remaining buttons on the system. A speed of 90 to 95 is typical if you have good coordination and hand control.
5. The button delay represents the amount of time that you have to push and hold the buttons down before they will begin to increment automatically at the button speed. The smaller the number the faster the response time.
6. Audio on or off disables or enables the audio system that beeps at the end of the treatment and during the NMES programs.

NOTE: *The factory settings cannot be accessed during operation and are only available following the start up screen. The settings will reset to their initial default parameters if the batteries are removed or the unit is fully discharged. To restore the new settings follow the procedure in Appendix I.*

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Battery Charger / Power Supply Operation

Before using the **OMNISTIM**® 500 battery charger/power supply:

1. Verify that rechargeable batteries are installed within the **OMNISTIM**® 500 battery compartment.
2. Check to see that the battery type selector switch located inside the battery compartment has been switched to the rechargeable position.

If you plug in the charger, after two seconds, the charge LED on the **OMNISTIM**® 500 is illuminated. After the batteries are fully charged, the LED blinks. If you plug in the charger during treatment or when the unit is ON the LED turns off. (The charging continues but at a trickle and does not cause the LED to glow.) When you turn OFF the unit after two seconds the LED comes on to announce charging.

NOTE: *If non-rechargeable batteries are used:*

1. *Do not use the charger.*
2. *Make sure that the rechargeable/non-rechargeable selector switch in the bottom of the battery compartment is in the non-rechargeable position.*

Life expectancies of batteries under nominal (20 mA IFC, 40 mA MFAC, 100v HVPC) load conditions:

- 4.4Ah NiCad rechargeable batteries - 10 Hours.
- Alkaline non-rechargeable batteries - 100 Hours.

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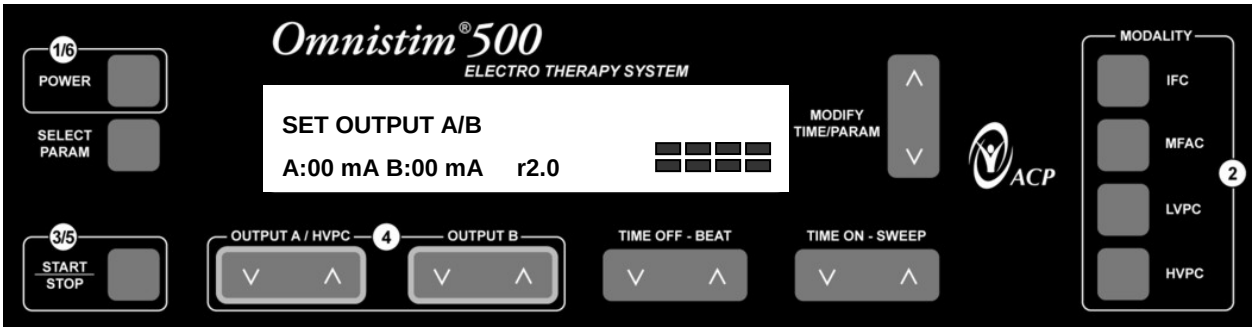
Operational Sequence



1. Press the ON/OFF button to turn on the power. The display panel will illuminate. There will be no stimulation current and the unit will be in the SELECT MODALITY/PROGRAM mode.
2. At this time select the treatment modality desired and the appropriate treatment protocol by using the modality buttons (2) to select HVPC, LVPC, MFAC or IFC protocols.
3. Now position the electrodes on the patient, connect the electrode plug(s) and press the START/STOP button (3/5). The program parameters will disappear and be replaced with the screen seen above.

   The bar graph on the lower right of the display shows the relative outputs of the two channels primarily with respect to Time On and Time Off and Vector operation. The numeric displays on the lower left show the output intensities into a 500-ohm load. Each time a treatment is commenced, the output current level is reset to zero; this ensures that your patient cannot receive an initial shock due to the current output, inadvertently, being left at a high setting from a previous treatment. The patient safety switch is a remote duplicate of the Start/Stop switch and therefore resets the outputs to zero.
4. Adjust output by pressing the up/down (4) for channel A and channel B. Once desired output intensity is selected, press START/STOP button (3/5) to display timer and to initiate treatment.
5. Press the SELECT PARAMETERS button to modify any settings. Press the MODIFY TIME / PARAM up or down buttons to adjust the desired treatment time, or other settings, if you wish to change from the default settings. Set the timer for the desired treatment time. Pressing the switch up or down, increases or decreases the duration from a minimum of 1 minute to a maximum of 60 minutes. The timer will count down to zero during treatment; when zero is reached a warning tone is emitted from the unit, the treatment current is switched off and Treatment Off is displayed. Pressing the START/STOP button (3/5) will shut off the warning tone. If the unit is left unattended, the warning tone is emitted for ten seconds before power is automatically switched off. Note that the treatment time is preset for each program but may be adjusted at will during the treatment.

   NOTE: *When selecting the MFAC or LVPC alternate or delayed modes the system will allow first set up of output A followed by set up of output B. Pushing the START/STOP SET output again will start the unit timing cycles if applicable in the program.*
6. During operation the parameters may be altered within the program at will by selecting the set mode. See set mode operation and adjustable parameters for each modality.
7. Once the treatment is completed, remove the electrodes from the patient and disconnect the lead wires from the electrodes.
8. Turn the unit off by pressing the power button.

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TREATMENT GUIDELINES

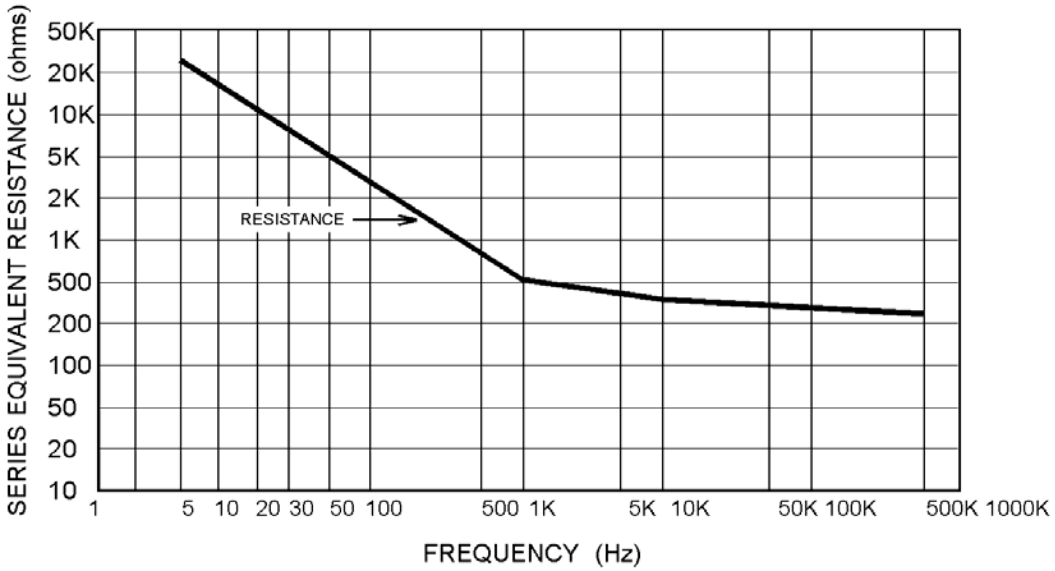
Introduction to Medium Frequency Currents

Medium frequency (MF) currents may be described as electrical currents applied to the body for therapeutic purposes, which fall in the range of 1000 to 10,000 cycles per second (Hz). This is in contrast to low frequency currents (0.1 to 1000 Hz) such as LVPC, HVPC, and high frequency currents (1 million Hz and beyond), which include ultrasound, shortwave and microwave diathermy. Medium frequency currents are very advantageous for clinical use due to their ease of skin penetration at lower intensities.

Normal human skin reacts differently to different frequencies of current. Specifically, there is an inverse relationship between the frequency of the applied current and the skin's resistance to it. Medium frequency alternating currents in the range of 1000 or 5000 Hz provide markedly lower resistance to penetration than low frequency electrical stimulation commonly used in TENS, LVPC, and HVPC stimulation. Medium frequency currents can be used in Bipolar or in Quadripolar Interferential mode for patient treatment.

With medium frequency currents, the energy of each individual pulse is low providing for stimulation of only one or two neurons. Since the pulses are coming in very rapid succession, stimulation of surrounding neurons occurs prior to completion of the previous neurons refractory period. This allows for asynchronous activation of individual sensory neurons, mimicking the natural physiologic process of the intact nervous system. This is not the case with low frequency stimulators (0.1 to 1000Hz), which are capable of only stimulus synchronous neural activation.

Medium frequency currents provide rapid analgesic effects. This occurs due to rapid depolarization of non-myelinated pain-transmitting fibers, which block pain transmission, further contributing to high muscle contraction capabilities. Additionally, medium frequency currents have been shown to alter the vascular dynamics affecting local and possibly systemic blood flow to the muscle(s) being stimulated. The unique characteristics of medium frequency currents, (higher percent duty cycle, higher average current intensity, and wider pulse widths), can significantly increase blood flow by altering the metabolic activity of muscles.



PLOT IMPEDANCE AS A FUNCTION OF FREQUENCY USING EPIDUCTIVE SYSTEMS

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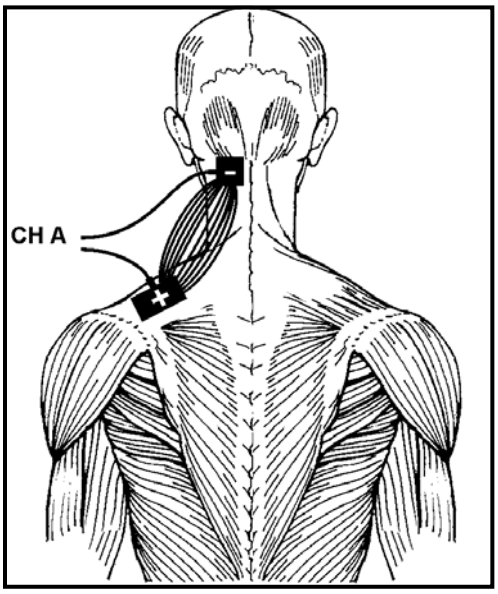
Electrode Application Techniques

The following electrode placement diagrams are a theoretical representation of treatment set-ups using the **OMNISTIM**® 500. Monopolar, bipolar and quadripolar techniques are illustrated for various areas of the body. Electrode placement is dependent on the etiology of the condition.

Monopolar (Mono-Polar) Technique

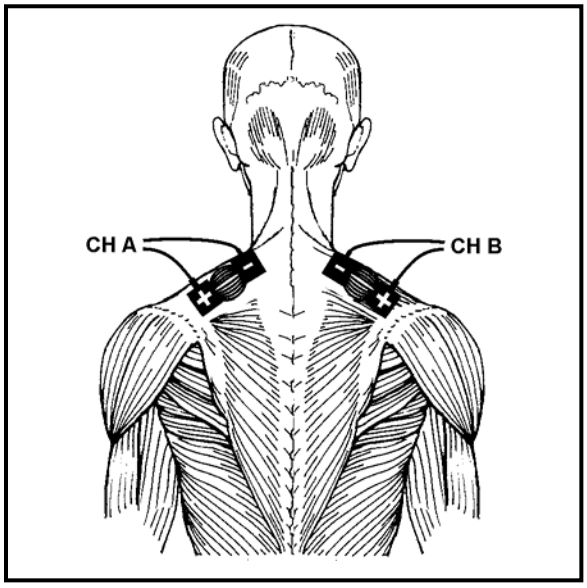
This technique may use two electrodes of different sizes. The smaller, or "active" electrode can be positioned over the segmental innervation or peripheral nerve path of the involved tissue, or over a distal location overlying any muscle that is not an antagonist to the muscle being stimulated.



CERVICAL MONOPOLAR PLACEMENT OF ELECTRODES

Bipolar (Bi-Polar) Technique

This is the most commonly used technique for muscle stimulation. This technique utilizes two electrodes but not exclusively of the same size. One electrode should be applied over the motor point and the other electrode over the belly of the muscle as far away from the motor point as possible. This technique allows for more effective muscle and nerve fiber recruitment since the entire neural innervation of the muscle is furnished with current.



CERVICAL BIPOLAR PLACEMENT OF ELECTRODES

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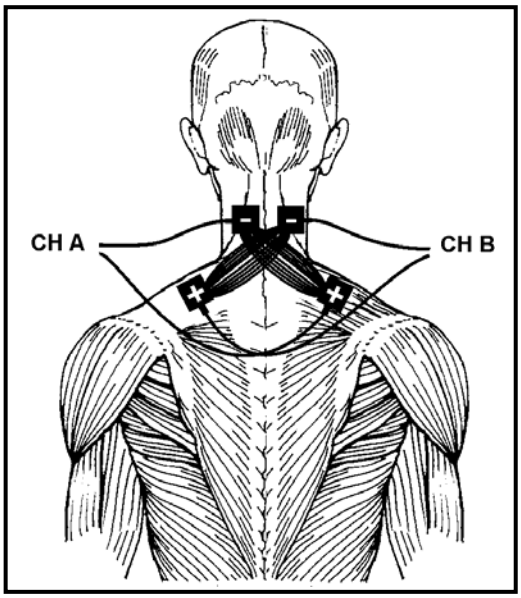
Quadripolar (Quadri-Polar) Technique

This technique requires the use of two output channels and four electrodes usually, but not exclusively of the same size. The two electrodes from one channel are usually placed diagonally across the tissue area or joint to be treated with the second channel electrodes placed on the opposite diagonal. This ensures that the current will intersect and thus provide and interferential pattern.



CERVICAL QUADRIPOLAR PLACEMENT OF ELECTRODES

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Treatment Preparation

Skin Inspection

Thoroughly cleanse the treated area with soap and water to remove oils, creams, dirt, and sweat; this will ensure uniform current conduction across the skin. After cleansing, inspect and evaluate the skin's integrity and sensation prior to treatment. Avoid absent or diminished sensation; if unavoidable, treat with caution. Establishment of acceptable intensity levels for desensitized areas may be related to the intensity levels tolerated on normal skin in opposite or related body parts. Frequently monitor the intensity level and skin response during all treatments.

Stinging, burning or other painful sensation under the electrodes on normal or desensitized areas is an indication of increased current density under part or all of the electrode surface. In this case, slowly but immediately reduce the current intensity to zero; remove the electrodes to inspect the surface skin. Recheck your application techniques.

Immediately after treatment, clean and thoroughly inspect the skin under the electrode. Peripheral vasodilation along with systemic vasomotor responses can lead to redness (hyperemia) directly under both electrodes. Inform the patient of this normal after effect and that the redness will disappear within an hour or two. Apply topical agents to the reddened area under the electrodes if needed to decrease post-treatment irritation. Persistent skin irritation could be due to repeated stimulation of the same electrode site or a possible allergic reaction to the conductive mediums, tapes, elastic wraps, and/or cleaning and disinfectant solutions. Therefore, use additional electrode stimulation sites to decrease or eliminate skin irritation on electrically sensitive patients. If skin irritation persists with alternate site applications, decrease the treatment times and lower the intensities; if necessary, discontinue treatment. If an allergic reaction is suspected, attempt to identify and change the allergic substance(s). If skin irritation persists, discontinue treatment until the source of irritation is determined.

By far the most common causes which lead to machines being incorrectly reported as faulty are inadequate or improper conductive medium interface or lead wire breakage. Because of the increased current density available with pulsed or continuous medium frequency currents, a proportionally greater degree of conductive medium interface problems exists and should be monitored by the clinician.

ACP Reusable Electrodes

Remove the electrodes from their foil packaging. Cleanse the skin then apply the electrodes over the treatment site points according to the electrode placements techniques described in this manual. Various sizes of electrodes are available dependent upon muscle size of the area to be treated. Follow the enclosed infection control procedures. Review the warnings and application directions on the electrode packaging.

NOTE: *The use of conductive mediums other than specifically approved pre-gelled or self adhering electrodes such as ultrasound gel or lotion, hand or body lotion, electrolyte spray mist, paper towels, non-approved reusable or disposable pre-gelled or self-adhering electrodes—are contraindicated for use with* ***OMNISTIM®*** *systems.*

Lead Wires

Inspect the full length of the lead wires for signs of frayed or cut wires and loose connections where the lead wires join the stereo jack plug and tip pins. Insert the stereo plug completely. Allow the lead wires to hang freely with no excessive strain on the stereo plug insulator.

Periodically check the lead wires by checking their conductivity with an Ohmmeter. With the lead wire pin tips together, measure the resistance between the tip and ring conductors of the stereo plug. The resistance should measure very near to zero. If the resistance remains near to zero when the pin tips are disconnected from each other, a short exists in the stereo plug insulator; replace the lead wire set.

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INFECTION CONTROL EQUIPMENT AND PRINCIPLES OF USE

Definitions

- **Barrier Film** – One-time use, disposable plastic film for use over touch/operator surfaces of equipment to reduce risks of cross-contamination and need for high level disinfection of equipment between patients.

- **Germicidal Disposable Wipe –** Low level and/or intermediate level disposable germicidal disinfectant wipe for use on electrotherapeutic devices and accessories.

- **Plastic Lead Wire Sleeve** – Barrier to be used on electrical stimulation lead wires, covering the junction of lead wire and electrode wire.

Universal Precautions – Body Substance Isolation

Universal Precautions (UP) must be implemented in the care of all patients to protect employees from occupational exposure to bloodborne pathogens. Personal protective equipment (gloves, masks, gowns) should be available and worn by staff when occupational exposure to blood, body fluids containing blood, semen and vaginal secretions is likely to occur. Health care workers with exudating lesions or weeping dermatitis should refrain from all direct patient care and from handling patient care equipment until the condition resolves. Equipment must be cleaned/disinfected and protective barriers used when appropriate.

Cleaning/Disinfecting of the OMNISTIM® 500

Modality equipment shall be cleaned/disinfected per facility infection control policy. ACP recommends the following guidelines:

Cleaning and Low Level Disinfection

This is a recommended daily housekeeping practice to keep the equipment clean and free of contaminants which could contribute to transmission of infection. The following practices are recommended for use when treating intact skin without the presence of physiologic fluids such as blood and urine.

- Clean equipment daily with ACP germicidal wipes. At the end of the day, wipe common contact surfaces, such as control panel and lead wires, with germicidal disposable wipe and allow to air dry. This technique will inactivate *M. tuberculosis* as well as most bacteria and viruses. This will also facilitate removal of organic material contaminants from equipment.
- Disposable/reusable electrodes are for individual patient use only and should not be used on multiple patients.

Intermediate Level Disinfection and Barriers

This method is recommended to keep the equipment clean and free of contaminants when used between patients for treatment of non-intact skin or incontinence management, where there is an increased risk of patient cross-contamination. The following are the recommended practices:

- After each use, clean common contact surfaces, such as control panel and lead wires with ACP germicidal wipes.
- With a second ACP germicidal cloth, wipe again leaving surfaces wet for at least 5 minutes. Allow the surface to air dry before patient use.
- Barriers should also be used on the equipment for treatment of non-intact skin or incontinence management. This technique will inactivate *M. tuberculosis* as well as most bacteria and viruses.

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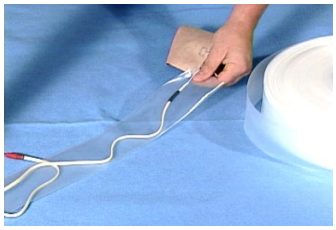
Use of Barriers – Intermediate Level Disinfection

The use of an all-purpose barrier film provides surface protection from cross-contamination resulting from a variety of applications. This procedure should be used whenever dealing with non-intact skin or the chance of coming in contact with bodily fluids. Barrier film is designed to cover any surface that may be touched during a patient treatment to help prevent cross-contamination. Barrier film is for single-use only. The film is discarded after each patient treatment. The procedure for use is as follows:

1. Wash hands.
2. Apply intermediate level disinfection prior to barrier application.
3. Select, tear and place a length of barrier film to fit over the operatory surfaces of the **OMNISTIM**® 500 unit.
4. Select and cut with clean scissors a 2-foot length of plastic sleeve and fit over the lead wire and the electrode cabling.
5. Prepare any items which may come in contatct with the therapist during treatment, such as pens, assessment tools, cart handles, etc.
6. Set up the patient per guidelines for the procedure.
7. Provide treatment as appropriate.
8. Discard all disposables.
9. With clean gloves, remove the plastic film from the **OMNISTIM**® 500 and discard.
10. Remove the plastic sleeve from the lead wire by sliding it toward the electrode. Remove the electrode and discard with the sleeve.
11. Intermediate disinfect the **OMNISTIM**® 500 unit prior to the next treatment application.



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MODES OF OPERATON: Protocol Reference Sheets
Interferential Current (IFC)

PROTOCOL / CLINICAL INDICATION	STIMULATION PARAMETERS	MECHANISM OF ACTION	APPLICATION TECHNIQUE	OPERATIONAL SEQUENCE
ANALGESIA - SENSORY SEGMENTAL SUB ACUTE Symptomatic relief of pain from localized dermatome or segmental origin.	• 5000Hz 80/120 BPS continuous • Vector Fast 90º • Treatment time of 15 minutes	Sensory stimulation activates A-beta fibers causing the release of spinal Enkephalin and Dynorphin to block pain at the segmental level (Gate Control). Duration of relief is typically from 30 min to 2 hrs. Fast onset of relief usually within 20 minutes.	Target tissue - superficial and deep. Bilateral, bipolar or quadripolar through the painful area or over the involved spinal segments. Apply parallel to incision line for post op pain management. Set intensity to elicit a pleasant tingling sensation, just below muscle contraction.	• Press IFC button until screen reads "ANALGESIA - SENSORY" • Press START / STOP until screen reads " SET OUTPUTS A-B" • Set Outputs A and B until the patient feels the desired sensation. • Press START / STOP and T15 will display in upper right corner. • Adjust treatment time if necessary using the TIME/PARAMETER button • The treatment will end at the end of the preset time or if the patient safety switch is pressed.
ANALGESIA - MOTOR NON - SEGMENTAL - CHRONIC Symptomatic relief of pain with inflammation, and pain of generalized or multi-segmental nature.	• 2500Hz – 2/6 BPS continuous • Vector Fast 90º • Treatment time of 15 minutes	Motor level stimulation activates motor and A-delta fibers causing the release of Bendorphin systemically. Duration of relief is typically from 2-6 hours. Slow Onset of relief usually within 30 minutes to 1 hour	Target tissue - superficial and deep. Bipolar placement over local and distal acu / trigger points; quadripolar placement over area of local pain; or quadripolar placement at spinal segment. Set intensity to elicit a moderate muscle twitch.	• Press IFC button until screen reads "ANALGESIA - MOTOR" • Press START / STOP until screen reads " SET OUTPUTS A-B" • Set Outputs A and B until the patient feels the desired sensation. • Press START / STOP and T15 will display in upper right corner. • Adjust treatment time if necessary using the TIME/PARAMETER button • The treatment will end at the end of the preset time or if the patient safety switch is pressed.
ANALGESIA / MOTOR-SENSORY SUB-ACUTE CHRONIC Symptomatic relief of pain with inflammation, and pain of local, generalized single or multi-segmental nature.	• 5000Hz – 15/2/100 BPS • Vector Fast 90º • Treatment time of 30 minutes	Combines motor and sensory stimulation. Starts with motor and ends with sensory. More aggressive protocol. Duration of relief is typically from 2-6 hours. Slower onset of relief usually within 30 minutes.	Target tissue - superficial and deep. Bipolar placement over local and distal acu / trigger points; quadripolar placement over area of local pain; or quadripolar placement at spinal segment. Set intensity to elicit a moderate muscle twitch.	• Press IFC button until screen reads "ANALGESIA/MOTOR - SENSORY" • Press START / STOP until screen reads " SET OUTPUTS A-B" • Set Outputs A and B until the patient feels the desired sensation. • Press START / STOP and T30 will display in upper right corner. • Adjust treatment time if necessary using the TIME/PARAMETER button • The treatment will end at the end of the preset time or if the patient safety switch is pressed.
ANALGESIA SENSORY-MOTOR ACUTE SUB-ACUTE Symptomatic relief of pain with Inflammation, pain of local, generalized single or multi-segmental nature.	• 5000Hz – 100/2 BPS continuous • Vector Fast 90º • Treatment time of 30 minutes	Combines sensory and motor stimulation. Starts with sensory and ends with motor. Less aggressive protocol. Duration of relief is typically from 2-6 hours. Faster onset of relief usually within 20 minutes.	Target tissue - superficial and deep. Bipolar placement over local and distal acu / trigger points; quadripolar placement over area of local pain; or quadripolar placement at spinal segment. Set intensity to elicit a strong tingling sensation just under muscle contraction.	• Press IFC button until screen reads "ANALGESIA/SENSORY - MOTOR" • Press START / STOP until screen reads " SET OUTPUTS A-B" • Set Outputs A and B until the patient feels the desired sensation. • Press START / STOP and T30 will display in upper right corner. • Adjust treatment time if necessary using the TIME/PARAMETER button • The treatment will end at the end of the preset time or if the patient safety switch is pressed.
ANALGESIA NERVE BLOCK LOCAL ACUTE Symptomatic relief of pain from localized dermal or segmental origin.	• 5000Hz Continuous • Vector OFF • Treatment time of 10 minutes	Blocks pain by causing a temporary nerve block through reactive depolarization (Conduction block) of the pain signal on its way to the spinal input. Also known as Wedensky inhibition. Duration of relief is typically from 1-2 hours Faster onset of relief usually within 5-10 minutes.	Target tissue - superficial and deep. Bipolar placement over local nerve; quadripolar placement over area of local pain; quadripolar placement at spinal segment. Set intensity to a numb-gripping sensation just under muscle contraction.	• Press IFC button until screen reads "ANALGESIA NERVE BLOCK" • Press START / STOP until screen reads " SET OUTPUTS A-B" • Set Outputs A and B until the patient feels the desired sensation. • Press START / STOP and T10 will display in upper right corner. • Adjust treatment time if necessary using the TIME/PARAMETER button • The treatment will end at the end of the preset time or if the patient safety switch is pressed.

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Medium Frequency Alternating Current (MFAC)

PROTOCOL / CLINICAL INDICATION	STIMULATION PARAMETERS	MECHANISM OF ACTION	APPLICATION TECHNIQUE	OPERATIONAL SEQUENCE
NMES EDEMA-MUSCLE PUMP Increase circulation, venous and lymphatic return through muscle pump.	• 5000Hz - 35 BPS • 4 Sec “ON” time and 12 Sec “OFF” time • Reciprocal (alternating) timing pattern • Ramps 2 Sec “ON/OFF” • Treatment time of 15 minutes	Activation of muscle causing contraction of the agonist and antagonist to move the joint. The muscle pump action compresses fluids into the venous and lymphatic return, while improving blood flow to the edematous tissue.	Target tissue - superficial and deep muscle groups and large joints. Bipolar set-up over agonist and antagonist muscles for target joint. Set intensity to elicit muscle contraction causing pain free joint movement typically a grade 3-4 muscle contraction. Reduce treatment time based on muscle fatigue.	• Press MFAC until screen reads "NMES EDEMA-MUSCLE PUMP" • Press START / STOP until screen reads " SET OUTPUT A" • Set Output A until the desired contraction of the Ch A muscle group is obtained. • Press START / STOP until screen reads " SET OUTPUT B" • Set Output B until the desired contraction of the Ch B muscle group is obtained. • Press START / STOP and T15 will display in upper right corner. • Adjust treatment time if necessary using the TIME/PARAMETER button • The treatment will end at the end of the preset time or if the patient safety switch is pressed.
NMES - MUSCLE SPASM Relaxation of muscle spasm.	• 5000 Hz - 80 BPS • 10Sec “ON” time and 10Sec “OFF” time • Channels fire simultaneously • Ramps are set for 3 Sec “ON/OFF” • Treatment time of 15 minutes	Activation of muscle with electrical stimulation with a 1:1 ratio of on/off times causes muscle fatigue reducing muscle spasm. Sensory stimulation of the muscles also reduces pain and thus reflex muscle spasm.	Target tissue - superficial and deep muscle groups. Bipolar set-up over agonist and antagonist muscles for target muscle. Set intensity to elicit a grade 2-3 muscle contraction.	• Press MFAC until screen reads "NMES - MUSCLE SPASM" • Press START / STOP until screen reads " SET OUTPUTS A-B" • Set Outputs A and B until the desired contraction level is obtained • Press START / STOP and T15 will display in upper right corner. • Adjust treatment time if necessary using the TIME/PARAMETER button • The treatment will end at the end of the preset time or if the patient safety switch is pressed.
HI PERFORMANCE MFAC RE-ED STRENGTH Treatment of muscle disuse atrophy for strength development.	• 2500Hz – 75 BPS • 10Sec “ON” time and 50Sec “OFF” time • Channels fire simultaneously • Ramps are set for 2 Sec “ON/OFF” • Treatment time of 10 minutes.	Activation of muscle with electrical stimulation at a high intensity for a short time with long on/off ramps reduces atrophy and improves strength The patient should participate to the extent possible by contracting during the stimulation on time.	Target tissue - larger superficial and deep muscle groups Bipolar set-up over agonist and antagonist muscles for target muscle. Set intensity to elicit a grade 3-5 muscle contraction. Reduce treatment time based on muscle fatigue. Restrict joint movement by holding manually, or using weights or exercise bands.	• Press MFAC until screen reads "HI PERFORMANCE MFAC RE-ED STRENGTH" • Press START / STOP until screen reads " SET OUTPUTS A-B" • Set Outputs A and B until the desired contraction level is obtained • Press START / STOP and T10 will display in upper right corner. • Adjust treatment time if necessary using the TIME/PARAMETER button • The treatment will end at the end of the preset time or if the patient safety switch is pressed.
HI PERFORMANCE MFAC RE-ED POWER Treatment of muscle disuse atrophy for power development.	• 2500Hz - 70 BPS • 10Sec “ON” time and 50Sec “OFF” time • Channels fire simultaneously • Ramps are set for .2 Sec “ON” and 1 Sec “OFF” • Treatment time of 10 minutes	Activation of muscle with electrical stimulation at a high intensity for a short time with short “ON/OFF” ramps reduces atrophy and improves power. The patient should participate to the extent possible by contracting during the stimulation on time.	Target tissue - larger superficial and deep muscle groups Bipolar set-up over agonist and antagonist muscles for target muscle. Set intensity to elicit a grade 3-5 muscle contraction. Reduce treatment time based on muscle fatigue. Restrict joint movement by holding manually, or using weights or exercise bands.	• Press MFAC until screen reads "HI PERFORMANCE MFAC RE-ED POWER" • Press START / STOP until screen reads " SET OUTPUTS A-B" • Set Outputs A and B until the desired contraction level is obtained • Press START / STOP and T10 will display in upper right corner. • Adjust treatment time if necessary using the TIME/PARAMETER button • The treatment will end at the end of the preset time or if the patient safety switch is pressed.
NMES - SEQ RE-ED Activates muscles sequentially to simulate functional movement or firing patterns.	• 2500Hz - 70 BPS • 10Sec “ON” time and 50Sec “OFF” time • Channels fire sequentially with a .2 Sec delay • Ramps are set for 2 Sec “ON/OFF” • Treatment time of 15 minutes	Activation of muscle causing contraction of the muscles in a sequential manner. May be used to retrain functional activity and reduce disuse atrophy in activities such as gait training for activation of swing phase to heel strike.	Target tissue - larger superficial and deep muscle groups. Bipolar set-up over the muscles to be sequentially stimulated. Ch A fires first followed by Ch B. The delay and ramps may be adjusted using the set parameter functions to simulate the desired functional pattern. Set intensity to elicit a grade 3-5 muscle contraction. Reduce treatment time based on muscle fatigue. Restrict joint movement by holding manually, or using weights or exercise bands.	• Press MFAC until screen reads "NMES - SEQ RE-ED" • Press START / STOP until screen reads " SET OUTPUTS A-B" • Set Outputs A and B until the desired contraction level is obtained • Press START / STOP and T15 will display in upper right corner. • Adjust treatment time if necessary using the TIME/PARAMETER button • The treatment will end at the end of the preset time or if the patient safety switch is pressed.
SPASTICITY REDUCTION RECIPROCAL INHIBITION Reduces muscle tone (Spasm) of spastic muscle.	• 5000 Hz - 80 BPS • 2500Hz - 50 BPS • 12Sec “ON” time and 18Sec “OFF” time • Channels fire simultaneously • Ramps are set for 6 Sec “ON” and 2 Sec “OFF” • Treatment time of 20 minutes	Stimulation of the spastic muscle's antagonists activates reciprocal inhibition of the spastic muscle reducing tone. Slow ramps decrease the potential to trigger spasticity of the agonist. Duration of relief is typically from 2-3 hours.	A single channel (A or B) is used over the spastic muscle’s antagonist. Set intensity to elicit a grade2-3 muscle contraction. Ensure the intensity is not too high to induce overflow activation of the spastic muscle. Reduce treatment time based on muscle fatigue and inhibition of spasticity.	• Press MFAC until screen reads "SPASTICITY REDUCTION RECIPROCAL INHIBITION " • Press START / STOP until screen reads " SET OUTPUTS A-B" • Set Outputs A and B until the desired contraction level is obtained • Press START / STOP and T20 will display in upper right corner. • Adjust treatment time if necessary using the TIME/PARAMETER button • The treatment will end at the end of the preset time or if the patient safety switch is pressed.

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Low Volt Pulsed Current (LVPC)

PROTOCOL / CLINICAL INDICATION	STIMULATION PARAMETERS	MECHANISM OF ACTION	APPLICATION TECHNIQUE	OPERATIONAL SEQUENCE
ANALGESIA SENSORY Symptomatic relief of pain from localized dermatome or segmental origin. Increase circulation.	• 100Hz - 80uSec PD Continuous • Treatment time of 20 minutes	Sensory stimulation reduces pain through segmental release of Enkephalin and Dynorphin (Gate Control). It also activates local vasodilation increasing local circulation. Application of negative polarity over the edematous site has been demonstrated to reduce post-traumatic edema in clinical trials.	Target tissue-superficial. Bilateral bipolar through the painful area or over the involved spinal segments. Apply parallel to incision line for post-op pain management. Set intensity to elicit a pleasant tingling sensation, just below muscle contraction.	• Press LVPC button until screen reads "ANALGESIA SENSORY". • Press START / STOP until screen reads “SET OUTPUTS A-B". • Set Outputs A and B until the patient feels the desired sensation. • Press START / STOP and T20 will display in upper right corner. • Adjust treatment time if necessary using the TIME/PARAMETER button. • The treatment will end at the end of the preset time or if the patient safety switch is pressed.
ANALGESIA MOTOR Symptomatic relief of pain with inflammation, or pain of a generalized or multi-segmental nature.	• 4Hz - 250uSec PD Continuous • Treatment time of 20 minutes	Motor level stimulation activates motor and A-delta fibers causing the release of Bendorphin systemically Duration of relief is typically from 2-6 hours Slow Onset of relief usually within 30 minutes to 1 hour.	Target tissue-superficial. Bipolar placement over local and distal acu / trigger point or at spinal segmental level. Set intensity to elicit a motor twitch.	• Press LVPC button until screen reads "ANALGESIA MOTOR". • Press START / STOP until screen reads “SET OUTPUTS A-B". • Set Outputs A and B until the patient feels the desired sensation. • Press START / STOP and T20 will display in upper right corner. • Adjust treatment time if necessary using the TIME/PARAMETER button. • The treatment will end at the end of the preset time or if the patient safety switch is pressed.
NMES - R.O.M. To provide estim assisted passive or active assisted R.O.M. at a joint.	• 35Hz - 200uSec PD • 4 Sec “ON” time and 12 Sec “OFF” time • Simultaneous timing pattern • Ramps are set for 2 Sec “ON/OFF” • Treatment time of 30 minutes	Activation of muscle causing contraction of the agonist and antagonist to move the joint and improve the R.O.M. Reduce treatment time based on muscle fatigue.	Target tissue - smaller superficial muscle groups. Bipolar set-up over agonist muscle for targeted joint. Set intensity to elicit muscle contraction causing pain free joint movement typically a grade 3-4 muscle contraction.	• Press LVPC until screen reads "NMES - R.O.M." • Press START / STOP until screen reads “SET OUTPUTS A-B". • Set Outputs A and/or B until the desired contraction level is obtained. • Press START / STOP and T30 will display in upper right corner. • Adjust treatment time if necessary using the TIME/PARAMETER button. • The treatment will end at the end of the preset time or if the patient safety switch is pressed.
NMES RE-ED Treatment of muscle disuse atrophy for strength development.	• 50Hz - 200uSec PD • 10 Sec “ON” time and 50 Sec “OFF” time • Channels fire simultaneously • Ramps are set for 2 Sec “ON/OFF” • Treatment time of 15 minutes	Activation of muscle with electrical stimulation at a high intensity for a short time reduces disuse atrophy and improves strength and power. The patient should participate to the extent possible by contracting during the stimulation “ON” time. Reduce treatment time based on muscle fatigue.	Target tissue - smaller superficial muscle groups. Bipolar set-up over agonist and antagonist muscles. Set intensity to elicit a grade 3-5 muscle contraction. Reduce treatment time based on muscle fatigue. Restrict joint movement by holding manually, or using weights or exercise bands.	• Press LVPC until screen reads "NMES RE-ED". • Press START / STOP until screen reads “SET OUTPUTS A-B". • Set Outputs A and/or B until the desired contraction level is obtained. • Press START / STOP and T15 will display in upper right corner. • Adjust treatment time if necessary using the TIME/PARAMETER button. • The treatment will end at the end of the preset time or if the patient safety switch is pressed.
NMES RE-ED ENDURANCE Treatment of muscle disuse atrophy for endurance development.	• 10Hz - 200uSec PD • 5 Sec “ON” time and 30 Sec “OFF” time • Channels fire simultaneously • Ramps are set for 1 Sec “ON/OFF” • Treatment time of 30 minutes	Activation of muscle with electrical stimulation at lower intensity for a longer time reduces disuse atrophy and improves endurance. The patient should participate to the extent possible by contracting during the stimulation "ON" time. Reduce treatment time based on muscle fatigue.	Target tissue - smaller superficial muscle groups. Bipolar set-up over agonist and antagonist muscles for target muscle. Set intensity to elicit a grade 2-4 muscle contraction. Reduce treatment time based on muscle fatigue. Restrict joint movement by holding manually, or using weights or exercise bands.	• Press LVPC until screen reads "NMES RE-ED ENDURANCE". • Press START / STOP until screen reads "SET OUTPUTS A-B". • Set Outputs A and/or B until the desired contraction level is obtained. • Press START / STOP and T30 will display in upper right corner. • Adjust treatment time if necessary using the TIME/PARAMETER button. • The treatment will end at the end of the preset time or if the patient safety switch is pressed.
DENERVATED MUSCLE D.C.	No longer used	Intentionally left blank	Intentionally left blank	• Do not use this protocol. • Protocol requires the use of a DC adapter which is no longer available from ACP.
LOW INTENSITY D.C.	No longer used	Intentionally left blank	Intentionally left blank	• Do not use this protocol. • Protocol requires the use of a DC adapter which is no longer available from ACP.

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High Volt Pulsed Current (HVPC)

PROTOCOL / CLINICAL INDICATION	STIMULATION PARAMETERS	MECHANISM OF ACTION	APPLICATION TECHNIQUE	OPERATIONAL SEQUENCE
HVPC SENSORY Symptomatic relief of pain from localized dermatome or segmental origin Increase circulation. Increase circulation.	• 125Hz + or – Polarity Continuous • Treatment time of 20-45 minutes	Sensory stimulation reduces pain through segmental release of Enkephalin and Dynorphin (Gate Control). It also activates local vasodilation increasing local circulation. Application of negative polarity over the edematous site has been demonstrated to reduce post-traumatic edema in clinical trials.	Target tissue - superficial and deep. Bipolar, appropriate polarity through the target tissue return electrode at spinal segmental electrode or local nerve. Set intensity to elicit a pleasant tingling sensation, just below the muscle contraction.	• Press HVPC until screen reads "HVPC SENSORY" • Press START / STOP until screen reads " SET OUTPUT A INTENSITY" • Set Output A/HVPC until the patient feels the desired sensation. • Press START / STOP and T20 will display in upper right corner. • Adjust treatment time if necessary using the TIME/PARAMETER button • The treatment will end at the end of the preset time or if the patient safety switch is pressed.
EDEMA-MUSCLE PUMP Increase circulation, venous and lymphatic return through muscle pump.	• 50Hz + or – Polarity • 4 Sec “ON” time 12 Sec “OFF” time • Single channel only (A) • Ramps 2 Sec “ON/OFF” • Treatment time of 20 minutes	Activation of muscle causing contraction of the agonist to move the joint. The muscle pump action compresses fluids into the venous and lymphatic return, while improving blood flow to the edematous tissue. Reduce treatment time based on muscle fatigue.	Target tissue - superficial and deep muscle groups and joints. Bipolar set-up over agonist muscle for target joint or edematous tissue. Set intensity to elicit muscle contraction causing pain free joint movement typically a grade 3-4 muscle contraction.	• Press HVPC until screen reads "EDEMA - MUSCLE PUMP" • Press START / STOP until screen reads " SET OUTPUT A INTENSITY" • Set Output A/HVPC until the desired contraction level is obtained • Press START / STOP and T20 will display in upper right corner. • Adjust treatment time if necessary using the TIME/PARAMETER button • The treatment will end at the end of the preset time or if the patient safety switch is pressed.

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STIMULATION THERAPY MODES

Interferential Current Therapy (IFC)

The new Webster Encyclopedia Dictionary of the English Language defines interference as "the mutual action of waves of any kind (water, sound, heat or light) upon each other, by which the vibrations and their effects are increased, diminished or neutralized."

As such, interferential current (IFC) therapy requires at least two signal sources, which "interfere" within the tissue to be treated. The resulting interference of the generators generates therapeutically useful stimulation of the area undergoing treatment. Interferential current therapy technique relies on amplitude differences between two or more isolated independent signals to produce fields of higher or lower intensity within the tissue.

The purpose of interferential current therapy is to provide deep tissue treatment, which is not generally obtainable with conventional electrotherapy approaches. Its primary application is in the reduction of pain and in the stimulation of increased blood flow in the deeper tissues and muscles.

1. Frequency Difference (FD) Technique

Dr. Hans Nemec, an Austrian physician, first introduced the concept of frequency difference interferential current therapy to the medical community in the late forties. The original U.S. patent (2,622,601) for the technique was filed on October 27, 1948 and granted on December 23, 1952. It has since expired and many manufacturers worldwide produce interferential current therapy devices according to Dr. Nemec's original method.

Simply stated, electric currents with frequencies in the range of 1000-10,000 Hz, known as medium frequency currents, are run through the tissue to be treated. These frequencies inhibit nerve conduction based on the fact that they cause temporary nerve membrane depolarization while present. This effect is known as Wedensky Inhibition. Medium frequency currents have an inhibitory effect on pain transmission and sensation within the field of treatment. This effect is responsible for the decreased sensation under the stimulation electrodes. Medium frequencies are also selected due to their excellent tissue penetration. This occurs as a result of the decreased tissue resistance at higher frequencies.

If the frequencies of the two generators are not the same, then a beat frequency (which is the difference between the two signal frequencies) is produced at right angles to the plane of the four stimulation electrodes. This beat frequency modulates the medium frequency current to produce a burst medium frequency within the tissues.

The effects of frequency difference interferential current therapy may be described as follows:

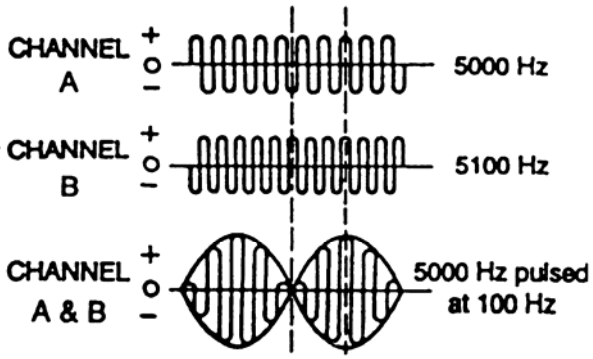
a. Stimulation of deep tissue only with two fields.
b. Produces surface Nerve Block via Wedensky Inhibition (helpful in acute pain treatment).

2. Vector Technique

In order to move the position of the deep interferential fields, researchers developed systems to alter the relative amplitudes between stimulation channels in interferential stimulators. This alteration of relative amplitude changes the phase relationships and the position of the summated field in the tissue.

Advantages of Dynamic Vector:

1. When the patient expresses a poor pain location and cannot indicate whether or not the therapy feels the strongest at the subjectively perceived location of the problem.
2. When the target tissue area is extremely large.
3. When you wish to increase the amount of current density in the tissues to obtain a higher therapeutic dosage.
4. When your electrode placement sites are less than optimal.



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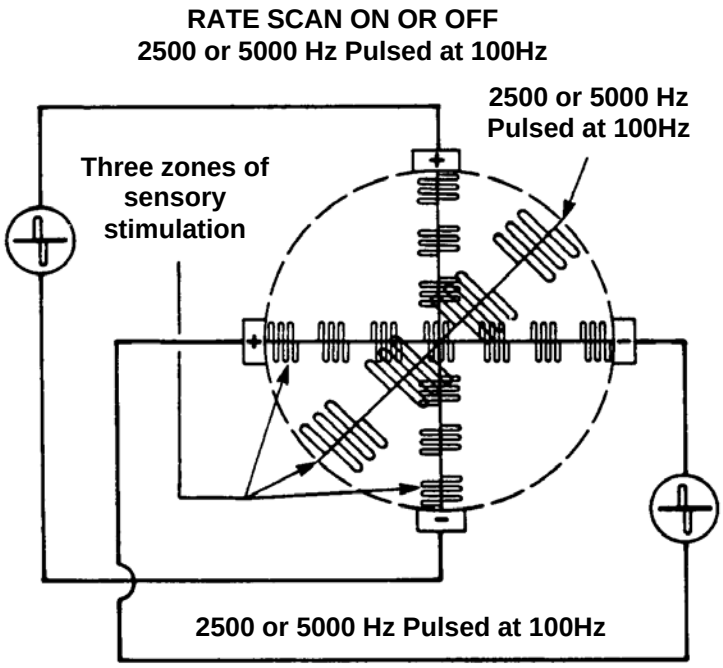
3. IFC FF-Full Field Mode:

The well-known attributes of modulated medium frequency currents, i.e. deep tissue penetration, asynchronous neural stimulation, and low tissue resistance, allows the creation of an interferential therapy system capable of both deep and superficial stimulation with the goals of maximizing sensory inputs. This technique is referred to as full field interferential current therapy. Full field amplitude summation interferential current therapy relies on the addition and subtraction of two intersecting currents within the tissue. This effect is based on the relative phase differences between the currents at different positions in the field. The following technique is used in the **OMNISTIM**® 500 when in the full field mode of operation.

The highest intensity field is obtained in the deep tissue at bisecting angles to the out-of-phase electrodes. This technique offers three stimulation fields.



AMPLITUDE SUMMATION IFC TECHNIQUE

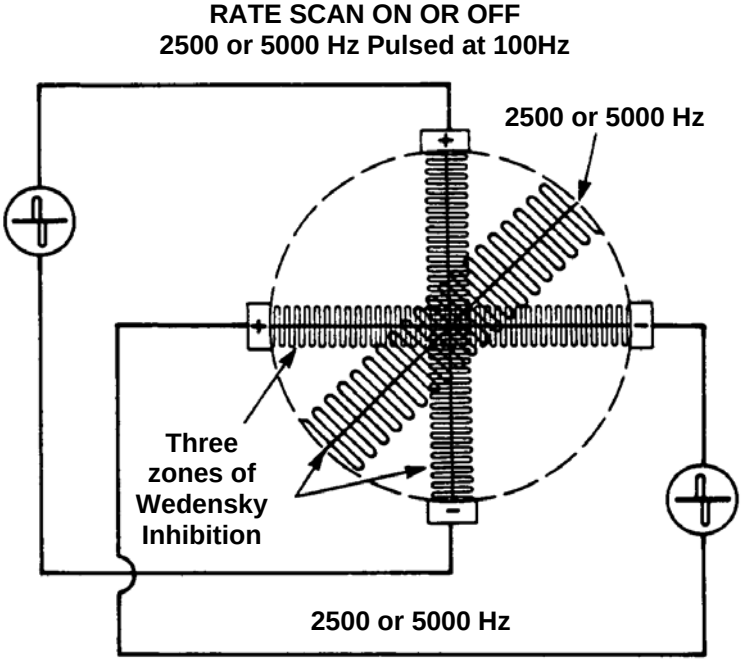
Amplitude Summation - IFC Technique

Should the clinician desire rapid analgesia and maximum comfort in both the surface and deep tissues, continuous non-modulated MF currents may be used with the **OMNISTIM**®, which will produce strong nerve blocks (Wedensky Inhibition) throughout the entire treatment field. This is often useful in the mobilization of joints, prior to transverse friction massage, or for relieving acute pain. It should be noted that this technique would produce only transient relief of pain.

The effects of full field interferential current therapy may be described as follows:

a. Stimulation of deep and surface tissues.

b. May be used to produce deep and surface analgesia via nerve block (Wedensky Inhibition) when MF mode is used.



FULL FIELD WEDENSKY INHIBITION

4. Interferential Current Therapy IFC Treatment Programs

The IFC mode contains five pre-programmed modes and a custom program, which may be programmed and saved by the user. The custom program will remain as long as the batteries remain charged or are not removed. All parameters other than the Carrier frequency may be varied during operation. The following programs are available in IFC mode:

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ANALGESIA – SENSORY (FULL FIELD):

Target tissue is superficial and deep. Sensory stimulation activates A-beta fibers causing the release of spinal Enkephalin and Dynorphin to block pain at the segmental level (Gate Control). Duration of relief is typically from 30 minutes to 2 hours. Fast onset of relief usually within 20 minutes.

PARAMETER	DEFAULT VALUES	RANGE OF USER ADJUSTABLE VALUES
IFC Mode:	**Full Field**	
Carrier frequency:	5.0 KHz	2.0 KHz, 2.5 KHz, 4.0 KHz 5.0 KHz
Burst frequency:	100Hz	.0 Hz to 999 Hz
Burst rate scan:	20%	0 – 50%
Burst scan time:	10 seconds	0 – 20 Seconds
Beat:		
Sweep:		
Rate Scan Time:		
Rate scan:	ON	ON or OFF
Vector:	Fast 90º	OFF, Fast 90º, Slow 90º, Fast 45º, Slow 45º
Auto Intensity:	10%	0 – 20%
Treatment time:	15 minutes	0 – 99 Minutes
Waveform:	Alternating Current	
Output:	0 mA	0 – 99 mA

ANALGESIA – SENSORY (FREQUENCY DIFFERENCE):

Target is deep tissue. Sensory stimulation activates A-beta fibers causing the release of spinal Enkephalin and Dynorphin to block pain at the segmental level (Gate Control). Duration of relief is typically from 30 minutes to 2 hours. Fast onset of relief usually within 20 minutes.

PARAMETER	DEFAULT VALUES	RANGE OF USER ADJUSTABLE VALUES
IFC Mode:	**Frequency Difference**	
Carrier frequency:	5.0 KHz	2.0 KHz, 2.5 KHz, 4.0 KHz 5.0 KHz
Burst frequency:		
Burst rate scan:		
Burst scan time:		
Beat:	80 Hz	.0 – 250 Hz
Sweep:	120 Hz	.0 – 250 Hz
Rate Scan Time:	15 Seconds	0 – 20 Seconds
Rate scan:		
Vector:	Fast 90º	OFF, Fast 90º, Slow 90º, Fast 45º, Slow 45º
Auto Intensity:	0%	0 – 20%
Treatment time:	15 minutes	0 – 99 Minutes
Waveform:	Alternating Current	
Output:	0 mA	0 – 99 mA

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ANALGESIA – MOTOR (FULL FIELD):

Target tissue is superficial and deep. Motor level stimulation activates motor and A-delta fibers causing the release of Bendorphin systemically. Duration of relief is typically from 2 to 6 hours. Slow onset of relief usually within 30 minutes to 1 hour.

PARAMETER	DEFAULT VALUES	RANGE OF USER ADJUSTABLE VALUES
IFC Mode:	**Full Field**	
Carrier frequency:	2.5 KHz	2.0 KHz, 2.5 KHz, 4.0 KHz 5.0 KHz
Burst frequency:	4.0 Hz	.0 Hz to 999 Hz
Burst rate scan:	50%	0 – 50%
Burst scan time:	10 seconds	0 – 20 Seconds
Beat:		
Sweep:		
Rate Scan Time:		
Rate scan:	ON	On or OFF
Vector:	Fast 90º	OFF, Fast 90º, Slow 90º, Fast 45º, Slow 45º
Auto Intensity:	0%	0 – 20%
Treatment time:	15 minutes	0 – 99 Minutes
Waveform:	Alternating Current	
Output:	0 mA	0 – 99 mA

ANALGESIA – MOTOR (FREQUENCY DIFFERENCE):

Target is deep tissue. Motor level stimulation activates motor and A-delta fibers causing the release of Bendorphin systemically. Duration of relief is typically from 2 to 6 hours. Slow onset of relief usually within 30 minutes to 1 hour.

PARAMETER	DEFAULT VALUES	RANGE OF USER ADJUSTABLE VALUES
IFC Mode:	**Frequency Difference**	
Carrier frequency:	2.5 KHz	2.0 KHz, 2.5 KHz, 4.0 KHz 5.0 KHz
Burst frequency:		
Burst rate scan:		
Burst scan time:		
Beat:	2 Hz	.0 – 250 Hz
Sweep:	5 Hz	.0 – 250 Hz
Rate Scan Time:	15 Seconds	0 – 20 Seconds
Rate scan:		
Vector:	Fast 90º	OFF, Fast 90º, Slow 90º, Fast 45º, Slow 45º
Auto Intensity:	0%	0 – 20%
Treatment time:	20 minutes	0 – 99 Minutes
Waveform:	Alternating Current	
Output:	0 mA	0 – 99 mA

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ANALGESIA / MOTOR – SENSORY:

Target tissue is superficial and deep. Combines motor and sensory stimulation. Starts with motor and ends with sensory. More aggressive protocol. Duration of relief is typically from 2 hours to 6 hours. Slower onset of relief usually within 30 minutes.

PARAMETER	DEFAULT VALUES	RANGE OF USER ADJUSTABLE VALUES
IFC Mode:	Full Field	
Carrier frequency:	5.0 KHz	
Burst frequency:	15 – 2 – 100 Hz	
Burst rate scan:		
Burst scan time:		
Beat:		
Sweep:		
Rate Scan Time:		
Rate scan:		
Vector:	Fast 90º	OFF, Fast 90º, Slow 90º, Fast 45º, Slow 45º
Auto Intensity:	10%	0 – 20%
Treatment time:	30 minutes	0 – 99 Minutes
Waveform:	Alternating Current	
Output:	0 mA	0 – 99 mA

ANALGESIA SENSORY – MOTOR:

Target tissue is superficial and deep. Combines sensory and motor stimulation. Starts with sensory and ends with motor. Less aggressive protocol. Duration of relief is typically from 2 hours to 6 hours. Faster onset of relief usually within 20 minutes.

PARAMETER	DEFAULT VALUES	RANGE OF USER ADJUSTABLE VALUES
IFC Mode:	Full Field	
Carrier frequency:	5.0 KHz	
Burst frequency:	100 – 2 Hz	
Burst rate scan:		
Burst scan time:		
Beat:		
Sweep:		
Rate Scan Time:		
Rate scan:		
Vector:	Fast 90º	OFF, Fast 90º, Slow 90º, Fast 45º, Slow 45º
Auto Intensity:	10%	0 – 20%
Treatment time:	30 minutes	0 – 99 Minutes
Waveform:	Alternating Current	
Output:	0 mA	0 – 99 mA

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ANALGESIA – NERVE BLOCK:

Blocks pain by causing a temporary nerve block through reactive depolarization (Conduction block) of the pain signal on its way to the spinal input. Also known as Wedensky inhibition. Duration of relief is typically from 1 to 2 hours. Faster onset of relief usually within 5 to 10 minutes.

PARAMETER	DEFAULT VALUES	RANGE OF USER ADJUSTABLE VALUES
IFC Mode:	Full Field	
Carrier frequency:	5.0 KHz	5.0 KHz or 10.0 KHz
Burst frequency:		
Burst rate scan:		
Burst scan time:		
Beat:		
Sweep:		
Rate Scan Time:		
Rate scan:		
Vector:	OFF	OFF, Fast 90º, Slow 90º, Fast 45º, Slow 45º
Auto Intensity:	10%	0 – 20%
Treatment time:	10 minutes	0 – 99 Minutes
Waveform:	Alternating Current	
Output:	0 mA	0 – 70 mA

IFC CUSTOM (FULL FIELD):

Protocol fully adjustable by therapist, which can be customized for surface to deep tissue treatment.

PARAMETER	DEFAULT VALUES	RANGE OF USER ADJUSTABLE VALUES
IFC Mode:	**Full Field**	
Carrier frequency:	5.0 KHz	2.0 KHz, 2.5 KHz, 4.0 KHz 5.0 KHz
Burst frequency:	80 Hz	.0 Hz to 999 Hz
Burst rate scan:	20%	0 – 50%
Burst scan time:	10 seconds	0 – 20 Seconds
Beat:		
Sweep:		
Rate Scan Time:		
Rate scan:	ON	On or OFF
Vector:	OFF	OFF, Fast 90º, Slow 90º, Fast 45º, Slow 45º
Auto Intensity:	20%	0 – 20%
Treatment time:	15 minutes	0 – 99 Minutes
Waveform:	Alternating Current	
Output:	0 mA	0 – 99 mA

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IFC CUSTOM (FREQUENCY DIFFERENCE):

Protocol fully adjustable by therapist, which can be customized for deep tissue treatment.

PARAMETER	DEFAULT VALUES	RANGE OF USER ADJUSTABLE VALUES
IFC Mode:	**Frequency Difference**	
Carrier frequency:	5.0 KHz	2.0 KHz, 2.5 KHz, 4.0 KHz 5.0 KHz
Burst frequency:		
Burst rate scan:		
Burst scan time:		
Beat:	50 Hz	.0 – 250 Hz
Sweep:	100 Hz	.0 – 250 Hz
Rate Scan Time:	15 Seconds	0 – 20 Seconds
Rate scan:		
Vector:	OFF	OFF, Fast 90º, Slow 90º, Fast 45º, Slow 45º
Auto Intensity:	20%	0 – 20%
Treatment time:	20 minutes	0 – 99 Minutes
Waveform:	Alternating Current	
Output:	0 mA	0 – 99 mA

5. Adjustable Parameters

Pushing the set button during operation brings up the available adjustable parameters. These may be altered during system operation with the exception of the carrier frequency and mode of operation (Full Field or Frequency Difference), which may only be altered when the output is turned off to the patient. (This prevents accidental shock to the patient resulting from the change in pulse charge.) To adjust any parameter simply push the parameter set button at any time during operation. This will display a parameter, which may be changed. Repeated pushing of the parameter set button will continue to display parameters one at a time until all parameters have been displayed. To change the parameter use the timer/parameter set rocker switch on the front panel to increase, decrease or change the value of the parameter.

BEAT - SWEEP: Beat adjustable from .1 - 250 Hz Sweep adjustable from beat to 250 Hz
RATE SWEEP TIME: Adjustable from 1-20 seconds
CARRIER FREQUENCY: Select 2000, 2500, 4000 or 5000 Hz.
VECTOR TECHNIQUE: The vector scans the amplitude of each channel simultaneously. The modulation may be set to sweep a 45 or 90-degree field. The sweep time of the vector can be set at fast (10 second up and down sweep time) or Slow (60 second up and down sweep time).
AUTO INTENSITY: Adjusts the output during treatment automatically from 0 to 20% user programmable.

IFC FD-Frequency Difference Interferential Mode:

This mode is generally used for treatment of deep tissue with nerve block effects occurring at the surface tissue. Output channel A fixed at 2000, 2500, 4000 or 5000 Hz. Output channel B variable from 0.1 to 250 Hz Beat rate and sweep may be set during treatment.

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Medium Frequency Alternating Current (MFAC)

1. Muscle Stimulation

Since the mid 18th Century, neuromuscular electrical stimulation (NMES) has been used as an adjunctive therapy for various neuromuscular and musculoskeletal disorders. Clinicians and investigators have been successfully using NMES to facilitate muscle contraction, to re-educate muscle action, to aid in the prevention of atrophy and to overcome neuromuscular inhibition following injury or surgery.

a. Isometric Muscle Stimulation

NMES during isometric exercise offers a reduced threat of over-stress and re-injury to the joint. NMES is clinically used at the mid point of the range of motion where the muscle can generate maximum torque.

Mode	NMES
Time ON	10 Sec
Time OFF	50 Sec
ON Ramp	2 Sec
OFF Ramp	2 Sec
Pulse Rate	35-50Hz

Procedure:

Gradually increase intensity to maximum patient tolerance during each contraction. The intensity should be increased to produce at least 50 to 80% of Maximum Voluntary Contraction (MVC). Place ACP Reusable Electrodes in a bipolar or quadripolar pattern on the muscle(s) being stimulated. The treatment should be approximately 15 minutes duration 3 to 4 times a week.

b. Muscle Spasm Reduction

NMES can be utilized to induce fatigue of muscles in spasm. Researchers have found that the greatest fatigue of muscles occurs when the muscle contraction relaxation times are equivalent (1:1 ratio) and when higher frequencies (60-80 Hz) are used. Electrical stimulation of the motor neuron using medium frequency currents results in neuromuscular junction fatigue.

Mode	NMES
Time ON	10 Sec
Time OFF	10 Sec
ON Ramp	1-2 Sec
OFF Ramp	1-2 Sec
Pulse Rate	35-50Hz

Procedures:

Gradually increase intensity to maximum patient tolerance during each contraction. Place electrodes in a monopolar, bipolar or quadripolar pattern on the muscles in spasm. The treatment time should be of approximately 20 minutes duration repeated 2 or 3 times per week.

c. Increased Blood Flow / Edema Reduction

Long and short-term electrical stimulation of muscle has been shown to alter the vascular dynamics affecting local muscle blood and lymph flow. It has been shown that blood-flow increased significantly during the first minute of electrical stimulation and remained elevated during and for ten minutes following stimulation. The immediacy of vasodilatation following electrical stimulation indicates that the vascular response is a functional, reflexive response. In addition, long-term electrical stimulation has been shown to increase the number of capillaries and thus improve the capillary blood-flow to the stimulated muscle. Not all types and parameters of electrical stimulation affect the blood-flow dynamics of the muscle being stimulated. Therefore, the following clinical parameters should be adhered to for optimal effectiveness.

Blood Flow	
Mode	NMES Simultaneous
Time ON	15 Sec
Time OFF	50 Sec
ON Ramp	2 Sec
OFF Ramp	2 Sec
Pulse Rate	50Hz

Muscle Pump Edema Reduction	
Mode	NMES Alternate
Time ON	4 Sec
Time OFF	4 Sec
ON Ramp	2 Sec
OFF Ramp	2 Sec
Pulse Rate	35Hz

Procedure:

Place one or two sets of electrodes in a bipolar or quadripolar technique over the selected muscle(s). Gradually increase intensity to 15 to 30% of maximum voluntary contractions. Continue the treatment for approximately 10 minutes.

ON - OFF TIME: On time adjustable from 0 – 30 seconds, Off time adjustable from 0 - 199 seconds
CHANNEL TIMING: Simultaneous, alternate or delayed channels
DELAY MODE: Adjustable from 0-9.9 seconds
AUTO INTENSITY: Adjusts the output during treatment automatically from 0 to 20% user programmable.

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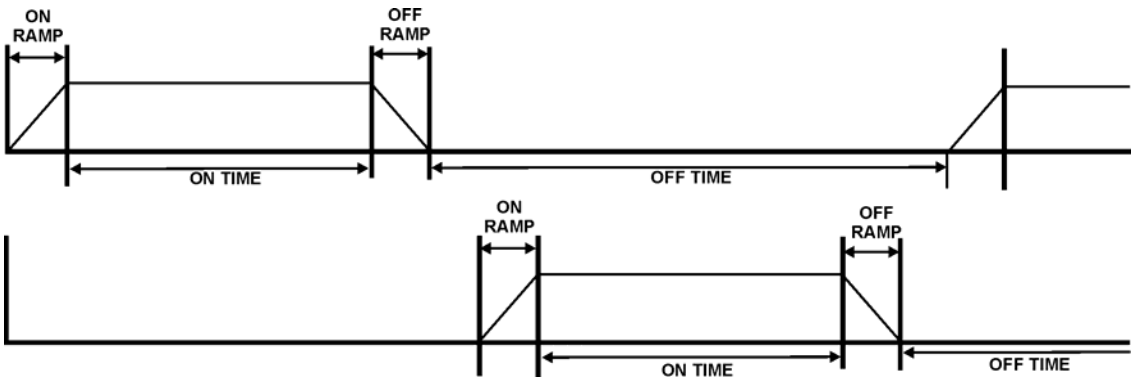

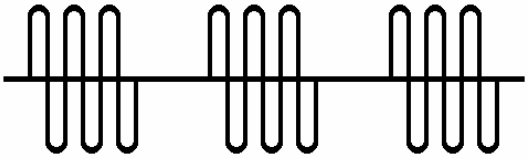

MAFC WAVEFORM

2. Treatment Programs

The MFAC mode contains six pre-programmed modes and a custom program which may be programmed and saved by the user. The custom program will remain as long as the batteries remain charged or are not removed. All parameters other than the Carrier frequency may be varied during operation. The following programs are available in MFAC mode:

NMES EDEMA - MUSCLE PUMP:

Activation of muscle causing contraction of the agonist and antagonist to move the joint. The muscle pump action compresses fluids into the venous and lymphatic return, while improving blood flow to the edematous tissue.

PARAMETER	DEFAULT VALUES	RANGE OF USER ADJUSTABLE VALUES
Carrier frequency:	5.0 KHz	2.0 KHz, 2.5 KHz, 4.0 KHz 5.0 KHz
Burst frequency:	35Hz	.0 Hz to 999 Hz
Burst rate scan:	20%	0 – 50%
Burst scan time:	4 seconds	0 – 20 Seconds
Rate scan:	ON	ON or OFF
Auto Intensity:	0%	0 – 20%
Treatment time:	15 minutes	0 – 99 Minutes
Channel B delay:		
Ramp up:	2 seconds	.0 – 9.9 seconds
Ramp down:	2 seconds	.0 – 9.9 seconds
Time on:	4 seconds	1 – 30 seconds
Time off:	12 seconds	0 – 199 seconds
Channels A/B:	ALTERNATE	ALTERNATE or SIMULTANEOUS
Waveform:	Alternating Current	
Output:	0 mA	0 – 99 mA

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NMES - MUSCLE SPASM:

Activation of muscle with electrical stimulation with a 1:1 ratio of ON/OFF times causes muscle fatigue reducing muscle spasm. Sensory stimulation of the muscles also reduces pain and thus reflex muscle spasm.

PARAMETER	DEFAULT VALUES	RANGE OF USER ADJUSTABLE VALUES
Carrier frequency:	5.0 KHz	2.0 KHz, 2.5 KHz, 4.0 KHz 5.0 KHz
Burst frequency:	80Hz	.0 Hz to 999 Hz
Burst rate scan:	20%	0 – 50%
Burst scan time:	8 seconds	0 – 20 Seconds
Rate scan:	ON	ON or OFF
Auto Intensity:	0%	0 – 20%
Treatment time:	15 minutes	0 – 99 Minutes
Channel B delay:		
Ramp up:	3 seconds	.0 – 9.9 seconds
Ramp down:	3 seconds	.0 – 9.9 seconds
Time on:	10 seconds	1 – 30 seconds
Time off:	10 seconds	0 – 199 seconds
Channels A/B:	SIMULTANEOUS	ALTERNATE or SIMULTANEOUS
Waveform:	Alternating Current	
Output:	0 mA	0 – 99 mA

HIGH PERFORMANCE MFAC RE-ED STRENGTH:

Activation of muscle with electrical stimulation at a high intensity for a short time with long ON/OFF ramps reduces atrophy and improves strength. The patient should participate to the extent possible by contracting during the stimulation ON time.

PARAMETER	DEFAULT VALUES	RANGE OF USER ADJUSTABLE VALUES
Carrier frequency:	2.5 KHz	2.0 KHz, 2.5 KHz, 4.0 KHz 5.0 KHz
Burst frequency:	75 Hz	.0 Hz to 999 Hz
Burst rate scan:	20%	0 – 50%
Burst scan time:	4 seconds	0 – 20 Seconds
Rate scan:	ON	ON or OFF
Auto Intensity:	0%	0 – 20%
Treatment time:	10 minutes	0 – 99 Minutes
Channel B delay:	.0 seconds	0 – 99 Minutes
Ramp up:	2 seconds	.0 – 9.9 seconds
Ramp down:	2 seconds	.0 – 9.9 seconds
Time on:	10 seconds	1 – 30 seconds
Time off:	50 seconds	0 – 199 seconds
Channels A/B:	SIMULTANEOUS	B DELAYED, ALTERNATE or SIMULTANEOUS
Waveform:	Alternating Current	
Output:	0 mA	0 – 99 mA

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HIGH PERFORMANCE MFAC RE-ED POWER:

Activation of muscle with electrical stimulation at a high intensity for a short time with short ON/OFF ramps reduces atrophy and improves power. The patient should participate to the extent possible by contracting during the stimulation ON time.

PARAMETER	DEFAULT VALUES	RANGE OF USER ADJUSTABLE VALUES
Carrier frequency:	2.5 KHz	2.0 KHz, 2.5 KHz, 4.0 KHz 5.0 KHz
Burst frequency:	70 Hz	.0 Hz to 999 Hz
Burst rate scan:	20%	0 – 50%
Burst scan time:	4 seconds	0 – 20 Seconds
Rate scan:	ON	ON or OFF
Auto Intensity:	0%	0 – 20%
Treatment time:	10 minutes	0 – 99 Minutes
Channel B delay:	.0 seconds	.0 – 9.9 seconds
Ramp up:	0.2 seconds	.0 – 9.9 seconds
Ramp down:	1 seconds	.0 – 9.9 seconds
Time on:	10 seconds	1 – 30 seconds
Time off:	50 seconds	0 – 199 seconds
Channels A/B:	SIMULTANEOUS	B DELAYED, ALTERNATE or SIMULTANEOUS
Waveform:	Alternating Current	
Output:	0 mA	0 – 99 mA

NMES SEQUENTIAL RE-ED:

Activation of muscle causing contraction of the muscles in a sequential manner. May be used to retrain functional activity and reduce disuse atrophy in activities such as gait training for activation of swing phase to heel strike.

PARAMETER	DEFAULT VALUES	RANGE OF USER ADJUSTABLE VALUES
Carrier frequency:	2.5 KHz	2.0 KHz, 2.5 KHz, 4.0 KHz 5.0 KHz
Burst frequency:	70 Hz	.0 Hz to 999 Hz
Burst rate scan:	20%	0 – 50%
Burst scan time:	4 seconds	0 – 20 Seconds
Rate scan:	ON	ON or OFF
Auto Intensity:	0%	0 – 20%
Treatment time:	15 minutes	0 – 99 Minutes
Channel B delay:	0.2 seconds	.0 – 9.9 seconds
Ramp up:	2 seconds	.0 – 9.9 seconds
Ramp down:	2 seconds	.0 – 9.9 seconds
Time on:	10 seconds	1 – 30 seconds
Time off:	50 seconds	0 – 199 seconds
Channels A/B:	B DELAYED	B DELAYED, ALTERNATE or SIMULTANEOUS
Waveform:	Alternating Current	
Output:	0 mA	0 – 99 mA

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SPASTICITY REDUCTION:

Stimulation of the spastic muscle's antagonists activates reciprocal inhibition of the spastic muscle reducing tone. Slow ramps decrease the potential to trigger spasticity of the agonist.

PARAMETER	DEFAULT VALUES	RANGE OF USER ADJUSTABLE VALUES
Carrier frequency:	2.5 KHz	2.0 KHz, 2.5 KHz, 4.0 KHz 5.0 KHz
Burst frequency:	50 Hz	.0 Hz to 999 Hz
Burst rate scan:	20%	0 – 50%
Burst scan time:	4 seconds	0 – 20 Seconds
Rate scan:	ON	ON or OFF
Auto Intensity:	0%	0 – 20%
Treatment time:	20 minutes	0 – 99 Minutes
Channel B delay:	.0 seconds	.0 – 9.9 seconds
Ramp up:	6 seconds	.0 – 9.9 seconds
Ramp down:	2 seconds	.0 – 9.9 seconds
Time on:	12 seconds	1 – 30 seconds
Time off:	18 seconds	0 – 199 seconds
Channels A/B:	SIMULTANEOUS	B DELAYED, ALTERNATE or SIMULTANEOUS
Waveform:	Alternating Current	
Output:	0 mA	0 – 99 mA

MFAC CUSTOM:

MFAC protocol which can be customized by the therapist.

PARAMETER	DEFAULT VALUES	RANGE OF USER ADJUSTABLE VALUES
Carrier frequency:	2.5 KHz	2.0 KHz, 2.5 KHz, 4.0 KHz 5.0 KHz
Burst frequency:	50 Hz	.0 Hz to 999 Hz
Burst rate scan:	20%	0 – 50%
Burst scan time:	4 seconds	0 – 20 Seconds
Rate scan:	ON	ON or OFF
Auto Intensity:	20%	0 – 20%
Treatment time:	15 minutes	0 – 99 Minutes
Channel B delay:	.0 seconds	.0 – 9.9 seconds
Ramp up:	2 seconds	.0 – 9.9 seconds
Ramp down:	2 seconds	.0 – 9.9 seconds
Time on:	5 seconds	1 – 30 seconds
Time off:	25 seconds	0 – 199 seconds
Channels A/B:	SIMULTANEOUS	B DELAYED, ALTERNATE or SIMULTANEOUS
Waveform:	Alternating Current	
Output:	0 mA	0 – 99 mA

3. Adjustable Parameters

Pushing the set button during operation brings up the available adjustable parameters. These may be altered during system operation with the exception of the carrier frequency, which may only be altered when the output is turned off to the patient. (This prevents accidental shock to the patient resulting from the change in pulse charge.) To adjust any parameter simply push the parameter set button at any time during operation. This will display a parameter, which may be changed. Repeated pushing of the parameter set button will continue to display parameters one at a time until all parameters have been displayed. To change the parameter use the timer/parameter set rocker switch on the front panel to increase, decrease or change the value of the parameter.

BURST RATE: Adjustable from 0 (cw) - 999 Hz
RATE SWEEP TIME: Adjustable from 0-20 seconds
BURST SWEEP %: Adjustable from 0 - 50%
CARRIER FREQUENCY: Select 2000, 2500, 4000 or 5000 Hz
ON-OFF RAMPS: Adjustable from 0 to 9.9 seconds

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Low Volt Pulsed Current (LVPC)

1. **Treatment Programs**
   The LVPC mode contains seven pre-programmed modes and a custom program, which may be programmed and saved by the user. The custom program will remain as long as the batteries remain charged or are not removed. All parameters may be varied during operation. The following programs are available in LVPC mode:

ANALGESIA SENSORY:

Sensory stimulation activates A-beta fibers causing the release of spinal Enkephalin and Dynorphin to block pain at the segmental level (Gate Control). Duration of relief is typically from 30 minutes to 2 hours. Fast onset of relief achieved usually within 20 minutes.

PARAMETER	DEFAULT VALUES	RANGE OF USER ADJUSTABLE VALUES
Phase duration:	80 µS	30 µS – 500 µS
Pulse rate:	100 Hz	.0 Hz to 999 Hz
Phase duration mod:		
Modulation time:		
Modulation:	OFF	ON or OFF
Auto Intensity:	10%	0 – 20%
Treatment time:	20 minutes	0 – 99 minutes
Channel B delay:		
Ramp up:		
Ramp down:		
Time on:		
Time off:		
Channels A/B:		
Waveform:	Asymetric Biphasic	
Output:	0 mA	0 – 99 mA

ANALGESIA MOTOR:

Motor level stimulation activates motor and A-delta fibers causing the release of Bendorphin systemically. Duration of relief is typically from 2-6 hours. Slow onset of relief usually within 30 minutes to 1 hour.

PARAMETER	DEFAULT VALUES	RANGE OF USER ADJUSTABLE VALUES
Phase duration:	250 µS	30 µS – 500 µS
Pulse rate:	4 Hz	.0 Hz to 999 Hz
Phase duration mod:		
Modulation time:		
Modulation:	OFF	ON or OFF
Auto Intensity:	10%	0 – 20%
Treatment time:	20 minutes	0 – 99 minutes
Channel B delay:		
Ramp up:		
Ramp down:		
Time on:		
Time off:		
Channels A/B:		
Waveform:	Asymetric Biphasic	
Output:	0 mA	0 – 99 mA

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NMES – R.O.M.:

Activation of muscle causing contraction of the agonist and antagonist to move the joint and improve the R.O.M. The patient should participate to the extent possible by contracting during the stimulation time.

PARAMETER	DEFAULT VALUES	RANGE OF USER ADJUSTABLE VALUES
Phase duration:	200 µS	30 µS – 500 µS
Pulse rate::	35 Hz	.0 Hz to 999 Hz
Phase duration mod:		
Modulation time:		
Modulation:	OFF	ON or OFF
Auto Intensity:	0%	0 – 20%
Treatment time:	30 minutes	0 – 99 minutes
Channel B delay:		
Ramp up:	2 seconds	.0 – 9.9 seconds
Ramp down:	2 seconds	.0 – 9.9 seconds
Time on:	4 seconds	1 – 30 seconds
Time off:	12 seconds	0 – 199 seconds
Channels A/B:	SIMULTANEOUS	ALTERNATE or SIMULTANEOUS
Waveform:	Asymetric Biphasic	
Output:	0 mA	0 – 99 mA

NMES RE-ED:

Activation of muscle with electrical stimulation at a high intensity for a short time reduces disuse atrophy and improves strength and power. The patient should participate to the extent possible by contracting during the stimulation time.

PARAMETER	DEFAULT VALUES	RANGE OF USER ADJUSTABLE VALUES
Phase duration:	200 µS	30 µS – 500 µS
Pulse rate:	50 Hz	.0 Hz to 999 Hz
Phase duration mod:		
Modulation time:		
Modulation:		
Auto Intensity:	0 %	0 – 20%
Treatment time:	15 minutes	0 – 99 minutes
Channel B delay:	0.0 seconds	.0 – 9.9 seconds
Ramp up:	2 seconds	.0 – 9.9 seconds
Ramp down:	2 seconds	.0 – 9.9 seconds
Time on:	10 seconds	1 – 30 seconds
Time off:	50 seconds	0 – 199 seconds
Channels A/B:	SIMULTANEOUS	B DELAYED, ALTERNATE or SIMULTANEOUS
Waveform:	Asymetric Biphasic	
Output:	0 mA	0 – 99 mA

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NMES RE-ED ENDURANCE:

Activation of muscle with electrical stimulation at lower intensity for a longer time reduces disuse atrophy and improves endurance. The patient should participate to extent possible by contracting during stimulation ON time.

PARAMETER	DEFAULT VALUES	RANGE OF USER ADJUSTABLE VALUES
Phase duration:	200 µS	30 µS – 500 µS
Pulse rate:	10 Hz	.0 Hz to 999 Hz
Phase duration mod:		
Modulation time:		
Modulation:		
Auto Intensity:		
Treatment time:	30 minutes	0 – 99 Minutes
Channel B delay:		
Ramp up:	1 seconds	.0 – 9.9 seconds
Ramp down:	1 seconds	.0 – 9.9 seconds
Time on:	5 seconds	1 – 30 seconds
Time off:	30 seconds	0 – 199 seconds
Channels A/B:	SIMULTANEOUS	B DELAYED, ALTERNATE or SIMULTANEOUS
Waveform:	Asymetric Biphasic	
Output:	0 mA	0 – 99 mA

DENERVATED MUSCLE DC:

PARAMETER	DEFAULT VALUES	RANGE OF USER ADJUSTABLE VALUES
Phase duration:		
Pulse rate:		
Phase duration mod:		
Modulation time:		
Modulation:		
Auto Intensity:		
Treatment time:		
Channel B delay:		
Ramp up:		
Ramp down:		
Time on:		
Time off:		
Channels A/B:		
Waveform:		
Output:		

DO NOT USE THIS PROTOCOL
NO LONGER SUPPORTED

LOW INTENSITY DC:

PARAMETER	DEFAULT VALUES	RANGE OF USER ADJUSTABLE VALUES
Phase duration:		
Pulse rate:		
Phase duration mod:		
Modulation time:		
Modulation:		
Auto Intensity:		
Treatment time:		
Channel B delay:		
Ramp up:		
Ramp down:		
Time on:		
Time off:		
Channels A/B:		
Waveform:		
Output:		

DO NOT USE THIS PROTOCOL
NO LONGER SUPPORTED

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LVPC CUSTOM:

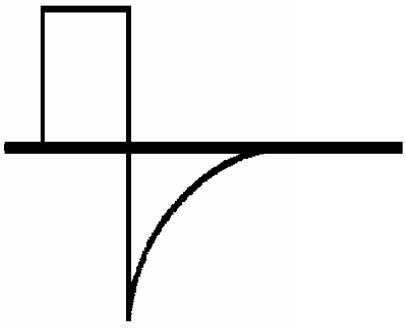
LVPC protocol which can be customized by the therapist.

PARAMETER	DEFAULT VALUES	RANGE OF USER ADJUSTABLE VALUES
Phase duration:	200 µS	30 µS – 500 µS
Pulse rate:	100 Hz	.0 Hz to 999 Hz
Phase duration mod:	0 %	0 – 50%
Modulation time:	0 seconds	0 – 20 seconds
Modulation:	OFF	ON or OFF
Auto Intensity:	20 %	0 – 20%
Treatment time:	20 minutes	0 – 99 minutes
Channel B delay:	0.0 seconds	.0 – 9.9 seconds
Ramp up:	2 seconds	.0 – 9.9 seconds
Ramp down:	2 seconds	.0 – 9.9 seconds
Time on:	5 seconds	1 – 30 seconds
Time off:	30 seconds	0 – 199 seconds
Channels A/B:	SIMULTANEOUS	B DELAYED, ALTERNATE or SIMULTANEOUS
Waveform:	Asymetric Biphasic	
Output:	0 mA	0 – 99 mA

2. Adjustable Parameters

Pushing the set button during operation brings up the available adjustable parameters. These may be altered during system operation. To adjust any parameter simply push the parameter set button at any time during operation. This will display a parameter which may be changed. Repeated pushing of the parameter set button will continue to display parameters one at a time until all parameters have been displayed. To change the parameter use the timer/parameter set rocker switch on the front panel to increase, decrease or change the value of the parameter.

PULSE RATE: Adjustable from .1 - 999 Hz
PHASE DURATION: Adjustable from 10 to 500 microseconds.
PHASE DURATION MODULATION: +/- 20% for a five second sweep time. Select on or off.
ON-OFF RAMPS: Independently adjustable from 0 to 9.9 seconds
ON - OFF TIME: On time adjustable from 0 - 30 seconds, Off time adjustable from 0 -199 seconds.
CHANNEL TIMING: Simultaneous, alternate or B channel delayed.
DELAY MODE: Adjustable from 0-9.9 seconds
AUTO INTENSITY: Adjusts the output during treatment automatically from 0 to20% user programmable.



LOW VOLTAGE PULSED CURRENT WAVEFORM
LVPC is generally used for surface and smaller muscle stimulation and pain control with TENS technique.

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High Volt Pulsed Current HVPC

1. Treatment Programs

The HVPC mode contains two pre-programmed modes and a custom program which may be programmed and saved by the user. The custom program will remain as long as the batteries remain charged or are not removed. All parameters may be varied during operation. The following programs are available in HVPC mode:

HVPC SENSORY:

Sensory stimulation activates A-beta fibers causing the release of spinal Enkephalin and Dynorphin to block pain at the segmental level (Gate Control). Duration of relief is typically from 30 minutes to 2 hours. Fast onset of relief usually within 20 minutes. Increased circulation through target tissue.

PARAMETER	DEFAULT VALUES	RANGE OF USER ADJUSTABLE VALUES
IP interval:	100 µS	10 µS - 250 µS
Pulse rate:	125 Hz	.0 Hz to 125 Hz
Auto Intensity:	10 %	0 – 20%
Treatment time:	20 minutes	0 – 99 Minutes
Ramp up:		
Ramp down:		
Time on:		
Time off:		
Waveform:	Monophasic	
Output:	0 V	0 – 250 V

EDEMA – MUSCLE PUMP:

Activation of muscle, causing contraction of the agonist to move the joint. The muscle pump action compresses fluids into the venous and lymphatic return, while improving blood flow to the edematous tissue.

PARAMETER	DEFAULT VALUES	RANGE OF USER ADJUSTABLE VALUES
IP interval:	100 µS	10 µS - 250 µS
Pulse rate:	50 Hz	.0 Hz to 125 Hz
Auto Intensity:	0%	0 – 20%
Treatment time:	20 minutes	0 – 99 Minutes
Ramp up:	2 seconds	.0 – 9.9 seconds
Ramp down:	2 seconds	.0 – 9.9 seconds
Time on:	4 seconds	1 – 30 seconds
Time off:	12 seconds	0 – 199 seconds
Waveform:	Monophasic	
Output:	0 V	0 – 250 V

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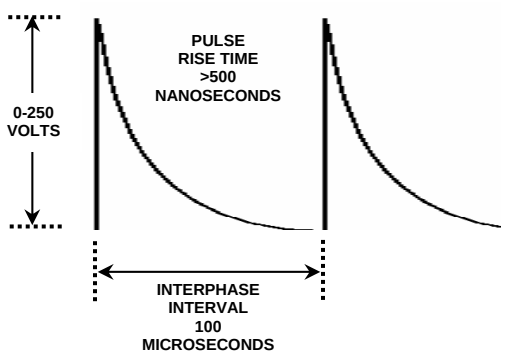
2. Adjustable Parameters

Pushing the set button during operation brings up the available adjustable parameters. These may be altered during system operation. To adjust any parameter simply push the parameter set button at any time during operation. This will display a parameter that may be changed. Repeated pushing of the parameter set button will continue to display parameters one at a time until all parameters have been displayed. To change the parameter use the timer/parameter set rocker switch on the front panel to increase, decrease or change the value of the parameter.

Adjustable Parameters

PULSE RATE:	Adjustable from .1 - 125 Hz
INTERPHASE INTERVAL:	Adjustable from 10 to 250 microseconds.
ON - OFF RAMPS:	Adjustable from 0 to 9.9 sec
ON - OFF TIME:	On time adjustable from 0-30 seconds, off time adjustable from 0-199 seconds
AUTO INTENSITY:	Adjusts the output during treatment automatically from 0 to 20% user programmable.

HVPC OUTPUT



HIGH VOLTAGE PULSED CURRENT WAVEFORM:
Continuous or surged operation with fully adjustable ON and OFF times and ramps allow applications of HVPC therapy. Reduction of edema, pain control, NMES and soft tissue management programs can be set up with the **OMNISTIM®** 500's high volt pulsed current mode.

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TROUBLESHOOTING

The following table lists machine problem symptoms and possible areas to check for the problem causes. If these suggested measures do not correct the machine malfunction, call your ACP customer service representative.

PROBLEM	CAUSE	REMEDY
Unit will not power on (under battery use)	• No batteries • Low batteries	• Install batteries • Charge or replace batteries • Verify type and settings of batteries • Inspect battery contacts and setting per procedure below
Unit will not power on (under line power use)	• Power Supply not plugged in to the unit of AC outlet • Power Supply not operational	• Verify Power Supply is connected as appropriate • Verify AC outlet is functional • Verify power plug used is appropriate and undamaged (see figure 2 below) • Inspect Power Supply operation per procedure below
Display shows "LOW BATTERY" warning	• Batteries charge is too low	• Recharge batteries for future use
Unit will not start	• No program selected	• Select MODALITY/PROGRAM
Cannot set carrier frequency	• Treatment in progress	• Stop treatment, adjust, and restart
Patient feels surging or spiking sensation	• Absent, inadequate, or improper conductive medium interface • Lead wire(s): short or breakage • Non-conductive or poorly conductive electrodes	• Replace with correct and adequate conductive medium • Test lead wire(s) and replace if necessary • Remove electrode(s) and replace if necessary
Patient cannot detect output	• Failure of lead wire(s), electrode(s), or conductive medium interface • Absent or dimished sensation at stimulation site • Failure of **OMNISTIM**® 500	• Use **OMNISTIM**® Output Tester to determine if unit has failed or is operating incorrectly. Plug the Output Tester into the Adapter. Turn on the **OMNISTIM**®. Increase output intensity. If LED illuminates properly, test lead wire(s) and electrode(s) and replace if necessary (see figure 1 below). If LED is not illuminated, contact ACP at (800) 350-1100 about replacing the unit. • Change electrode location. Perform sensory testing of the skin under the electrode site.

Figure 1

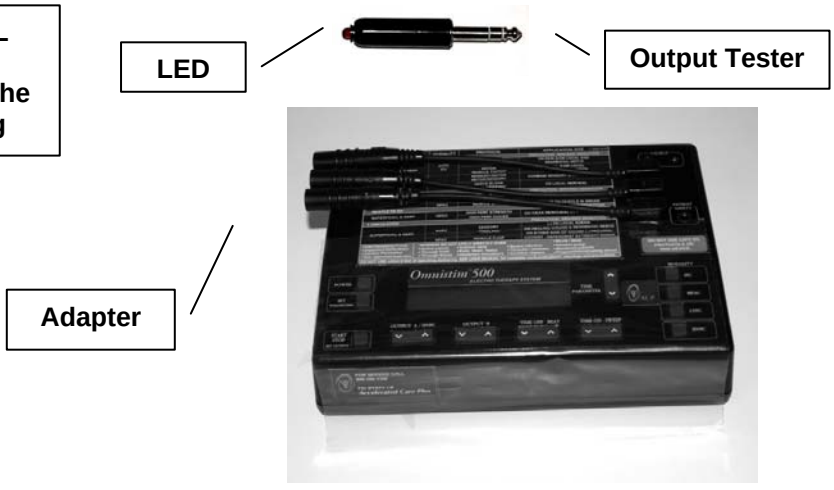

Figure 2

NOTE: *When using the **OMNISTIM**® Output Tester, increase unit output intensity to 40 mA or higher in order to significantly illuminate the LED. Also, view the LED located at the end of the output tester directly. If viewed at an angle, the LED may be too dim to notice that it is illuminated.*

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INSPECT BATTERY CONTACTS / VERIFY BATTERY SWITCH SET TO RECHARGEABLE

1. Remove batteries if they are installed.
2. Inspect the battery contacts for any corrosion or discoloration. If corrosion or discoloration is found, perform the following steps to clean the metal contacts:
   - Remove the power cord from the stimulator unit.
   - Hold the metal contact plate in place with one finger.
   - Use a small piece of sand paper to clean the surface of the metal contact thoroughly as needed. (Figure 3).

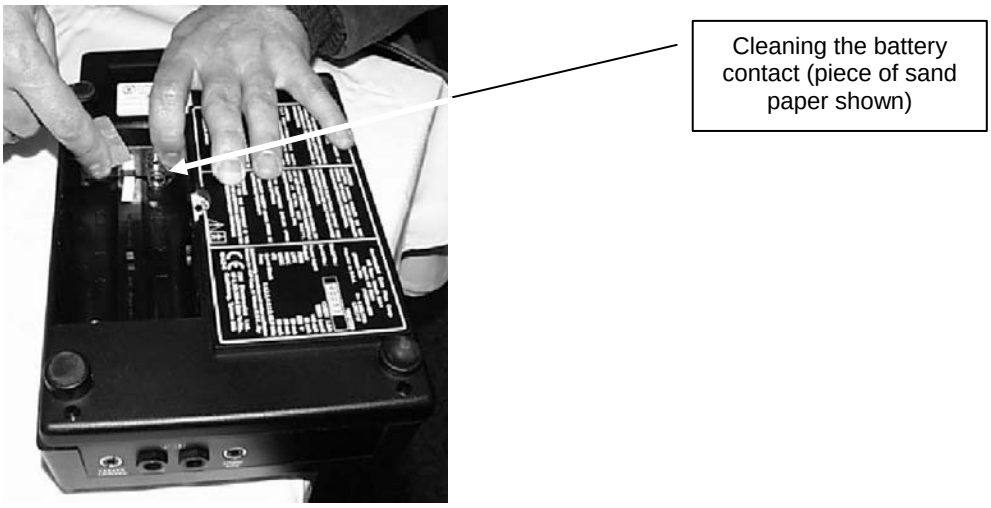

Figure 3

3. Verify the switch inside the battery compartment is set to the RECHARGEABLE BAT. Position (assuming rechargeable batteries are being used, which is recommended).
4. Install the rechargeable batteries into the unit.
5. Verify the battery door opens and closes correctly. The door should lock into place when closed.

INSPECT POWER SUPPLY OPERATION

1. Connect the power cord to the power supply and then to a power outlet.
2. Connect the power supply cable to the stimulator unit (Figure 4).

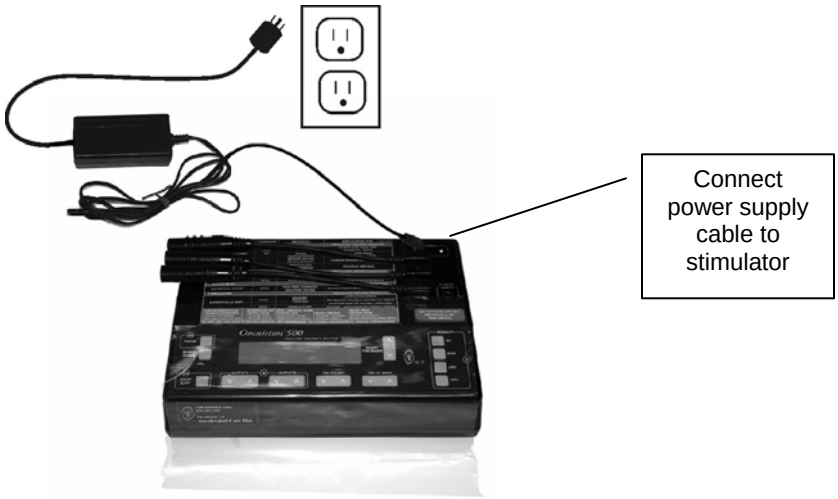

Figure 4

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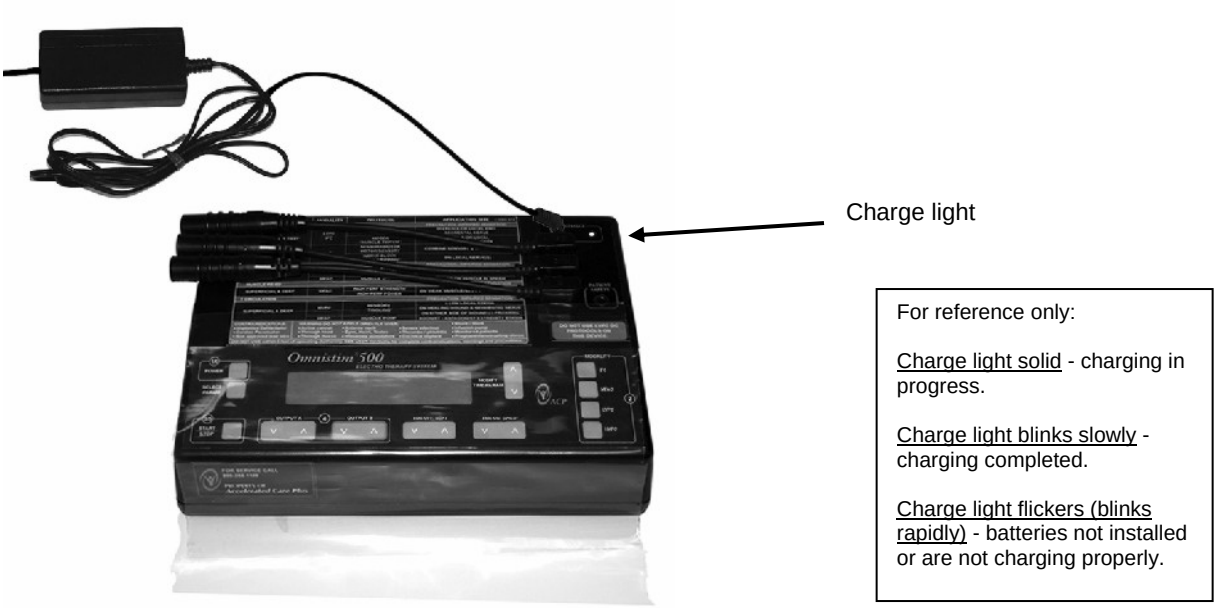
3. Press the power supply switch ON (if applicable, Figure 5a).
   NOTE: Newer power supply model does not have a ON/OFF switch (Figure 5b).

Figure 5a

Press power supply switch ON

Figure 5b

4. Verify the CHARGE light is on or blinking (Figure 6).
5. Power on the stimulator and verify that you hear a click of the safety circuit relay energizing.



For reference only:

Charge light solid - charging in progress.

Charge light blinks slowly - charging completed.

Charge light flickers (blinks rapidly) - batteries not installed or are not charging properly.

Figure 6

Service Center

For repair or service of ACP Products and accessories, please call (800) 350-1100 and follow the prompts. Normal hours of operation are 7:00am to 5:00pm Pacific Standard Time. After hours, please leave a message and a technician will return your call during the next scheduled workday.

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TECHNICAL SPECIFICATIONS

GENERAL:	
Dimensions:	9.5" (24cm) W x 6.5" (16.5cm) D x 3" (7.6cm) H
Weight (including batteries):	3lbs. 14oz. (1.75 kgs)
Operating Power:	120/240VAC; 50/60Hz; 50W 4 x 1.5VDC "D" cell alkaline or rechargeable batteries.
Battery Life:	New alkaline batteries operate the system for 40 hours at full output and over 100 hours at normal settings. Battery voltage is displayed and monitored. With the 4.4AH NiCad rechargeable cells the system will operate approximately 10 hours at normal settings.
Display System:	Super Twist LCD full character display with adjustable contrast /viewing angle.
Push Buttons:	Conductive rubber with excellent tactile feel. Speed and sensitivity are fully adjustable.
System Memory:	The system remembers all prior custom settings from treatment to treatment in active battery powered RAM memory. (Must be reset if the batteries are changed or discharged.)
System Architecture:	CMOS integrated micro-controller with on board memory and instruction set.
STIMULATION SYSTEM:	
Output:	Constant voltage up to maximum preset current limit
Output Waveform:	AC sine wave into physiologic load, IFC and MFAC modes, and biphasic square wave (LVPC) or monophasic pulsed current (HVPC mode). Output Amplitude: IFC FD and NMES modes-0 to 70 mA RMS current into a 500Ω, LVPC mode 75mA P-P, HVPC mode 250VDC peak into 500Ω loads.
Channel Isolation:	Independent transformer isolation.
Line Leakage:	<50 μA when operated with the charger system.
IFC MODES:	
Frequency Difference Rate:	Output channel A, fixed at 2KHz, 2.5KHz, 4KHz or 5KHz. Output channel B variable from channel A frequency + 0.0 to 250Hz. Beat rate may be set during treatment.
Full Field Burst Rate:	0.1 - 999Hz
Rate Scan:	0 - 20 seconds, 0 - 50% modulation, upper and lower frequencies are fully programmable and sweep time is adjustable in set mode.
Vector:	*Fast 90^{O}* - Scans amplitude of channel A from 0 - maximum every 10 seconds relative to channel B, which varies concurrently out of phase. *Slow 90^{O}* - Scans amplitude of channel A from 0 - maximum every 60 seconds relative to channel B, which varies concurrently out of phase. *Fast 45^{O}* - Scans amplitude of channel A from 50% to maximum every 10 seconds relative to channel B, which varies concurrently out of phase. *Slow 45^{O}* - Scans amplitude of channel A from 50% to maximum every 60 seconds relative to channel B, which varies concurrently out of phase.
MFAC MODE:	
Waveform:	Modified sine wave into physiologic load 2KHz, 2.5KHz, 4KHz or 5KHz carrier frequency.
Burst Rate:	Adjustable from 0.1 to 999bps, 50% duty factor
Rate Scan:	From 0-50% programmable with scan time, programmable from 0-20 seconds

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LVPC (LOW VOLTAGE PULSED CURRENT) MODE:	
Waveform:	Biphasic square wave
Phase Duration:	10-500µs
Pulse Rate:	0.1 - 999pps
HVPC (HIGH VOLTAGE PULSED CURRENT) MODE:	
Waveform:	Twin monophasic pulses each with 40µs phase duration, with inter phase interval of 100µs
Pulse Rise Time:	<500 ns
Pulse Rate:	Adjustable from 1-125pps
Interphase Interval:	Adjustable from 10-250µs
TIMER FUNCTIONS:	
Treatment Timer:	Adjustable for 1-99 minutes in one minute increments. Turns output to zero and system off and sounds 10-second buzzer to indicate completion of treatment.
Channel Timing:	In alternating mode channels follow each other sequentially. In simultaneous modes the output is simultaneous. In delayed mode channel B is delayed.
TIMING SELECTIONS:	
Ramp Time:	Adjustable from 0.1 to 9 seconds in 0.1-second increments. Ramps overlap in NMES Alt mode or with channel delay
ON Time:	Adjustable from 1 to 30 seconds in 1-second increments
OFF Time:	Adjustable from 0 (continuous) to 199 seconds in 1-second increments
PATIENT SAFETY SYSTEMS:	
Activation:	Patient safety hand control shuts down output. Output modality may not be changed during operation. Output levels are reset to zero at the start and completion of treatment.
MISC.:	
Auto Intensity:	Output intensity is gradually increased during treatment from 0 to 20% automatically in a linear manner over the duration of the treatment when the anti-adaptation mode is selected. The amount of the increase is user programmable.
Treatment Programs:	IFC: 5 Presets 1 Custom MFAC: 6 Presets 1 Custom * For program details see page 24. LVPC: 7 Presets 1 Custom HVPC: 2 Presets
Certificates and Approvals:	Devices are designed to meet or exceed all safety requirements of a medical device in its class per IEC 60601 and CSA C22.2 No. 601.1

Caution: Federal law restricts this device to sale by or on the order of a physician (or other health practitioner licensed by their State).

ACP reserves the right to change technical specifications and product availability without notice.

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OMNISTIM® 500 STANDARD AND OPTIONAL ACCESSORIES

ITEM	ITEM NO.	DESCRIPTION
	100500A	**OMNISTIM® 500 MULTIMODALITY MICROPROCESSER CONTROLLED TREATMENT SYSTEM** 2 channels of programmable stimulation with IFC Frequency Difference Interferential, MFAC (Russian style NMES), High Volt Pulsed Current and Low Volt Pulsed Current. **Shipping Weight: 5 lbs (2.3 kg)**

ITEM	ITEM NO.	DESCRIPTION
	WPC-259B **WPC-259G**	Lead Wire – Blue or Green coded plug-in, 7' (214cm) .08 tip pin stereo plug
	WPC-238	Lead Wire (single)- 7' (214cm) .080 tip pin stereo plug
	*** WPC-244**	Bifurcated Lead Wire
	PAD-10	3-Pin Lead Wire Adapter
	WHN01002	Patient Safety Switch
	LTF02702-G	Charger / Line Power Supply 110v
	WHN14401-G	AC Line Cord - **OMNISTIM®**
	OTH-04-02	**OMNISTIM®** Output Tester
	***KCS00401**	**OMNISTIM®** Leatherette Soft Carry Case
	KR-4400D	Rechargeable Batteries (D size) 4400 mAh Heavy Duty Medical Grade Ni-Cd (Nickel Cadmium)
	290500	**OMNISTIM®** #100500A Operator Manual

**** This item is an optional accessory and is not included with the unit.***

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Electrodes

ITEM	ITEM NO.	DESCRIPTION
	ERC 2 X 2	2x2 Silver Backed Reusable Electrode (4 per package)
	ERC 2 X 4	2x4 Silver Backed Reusable Electrode (4 per package)
	ERC 3 X 5	3x5 Silver Backed Reusable Electrode (2 per package)
	EDC 4 X 4	4x4 Disposable Non-Gelled Electrode (for Wound Care) (25 per package)

Infection Control Supplies

ITEM	ITEM NO.	DESCRIPTION
	1803C	Protective Film for Surfaces, Infection Control, 4” X 6” Perforated sheets – 600 ft/Roll
	1867C	Protective Film for Surfaces, Infection Control, 12” X 14” Perforated Sheets– 600 ft/Roll
	1912B	Barrier Tubing 3", 1200’/roll
	GDWP	Germicidal Disposable Wipe - Single Use Packet (50 pkt/bx)
	GDWT	Germicidal Disposable Wipe Tub (160/Tub)

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LIMITED PRODUCT WARRANTY

Warranty Coverage

Accelerated Care Plus Corp., (ACP) warranty extends to any owner of the product during the warranty period for that product. Only those items returned to the ACP Service Center within the warranty period, and also within 30 days after notification to ACP of the defect, shall be eligible for repair under the product warranty. ACP may, at its discretion, repair or replace any part(s) that prove to be defective during the warranty period.

Warranty Exclusion

Any and all warranty coverage will be void if any of the following have occurred:

1. The product contains repairs or replacement parts not furnished by ACP.
2. The product is damaged resulting from misuse or negligence.
3. The product has been tampered with and/or altered, including serial number alteration.

Warranty Period

New Equipment

New ACP equipment is warranted against defects in material and workmanship for a period of two (2) years from the date of purchase.

Refurbished Equipment

Equipment purchased specifically labeled as Refurbished equipment, is warranted against defects in material and workmanship for a period of one (1) year from the date of purchase.

Accessories

All accessories for ACP equipment are warranted against defects in material and workmanship for a period of ninety (90) days from the date of purchase.

Ultrasound transducers are warranted against defects in material and workmanship for a period of one (1) year from the date of purchase.

Crystals for ultrasound transducers have a lifetime warranty against defects in material and workmanship.

Warranty Validation

A copy of the ACP or Recognized Dealer invoice is required to verify and approve warranty coverage.

The following information needs to be provided to the ACP Customer Service Representative prior to the product being returned under warranty coverage:

- Customer Name or Account Number as it appears under the “Bill To” on the ACP or Recognized ACP Dealer invoice.
- Invoice Date and Number
- Model number, description, and serial number of equipment
- Detailed description of the problem and/or issue

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Return of Defective Products

Any product returned to the ACP Service Center under warranty coverage must have the warranty coverage validated and must receive authorization from ACP Customer Service prior to being received at the Service Center.

Shipping charges, insurance, and any other costs incurred in sending product to ACP Service Center is the responsibility of the customer and will not be refunded. ACP shall cover the shipping charges and related costs to return the unit to the customer.

ACP is not responsible for any loss or damage to the equipment prior to receipt at an ACP Service Center. Equipment returned for warranty service must be shipped complete with all accessories (except for manuals) in its original packing or equivalent so as not to be damaged while in transit.

NOTE: Any equipment sent to the ACP Service Center that is not covered by the ACP Limited Product Warranty, is subject to a minimum service and handling fee.

IMPORTANT:

DO NOT SHIP THE PRODUCT TO ACP SERVICE CENTER WITHOUT FIRST SECURING AUTHORIZATION TO DO SO. EQUIPMENT SENT IN WITHOUT AUTHORIZATION FROM ACP CUSTOMER SERVICE WILL NOT BE ACCEPTED.

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WARRANTY REGISTRATION CARD

Company Name: _____
Company Address: _____
City/State/Zip _____
Telephone Number: _____
Date of Purchase: _____
Purchased from: (Recognized Dealer) _____
Dealer Address: _____
City/State/Zip: _____
Unit Model Number: _____
Unit Serial Number: _____

Please copy this form and mail completed registration card, and supporting documents to:

Accelerated Care Plus Corporation
4850 Joule Street
Suite A-1
Reno, NV 89502

Thank you for choosing ACP, we appreciate your business.

The serial number of the equipment may be found on the label, on the underside of the unit. For your convenience, record these numbers below, and retain along with your proof of purchase, to serve as a permanent record of your purchase.

ITEM NO.	DESCRIPTION	SERIAL NO.	PURCHASE DATE	DEALER

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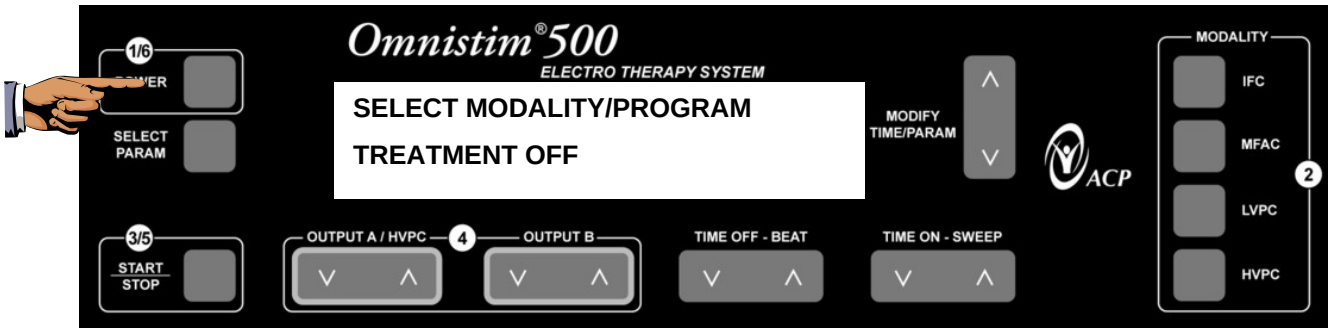
APPENDIX - ILLUSTRATED OPERATIONAL SEQUENCE

Procedure for Quick Start-Up

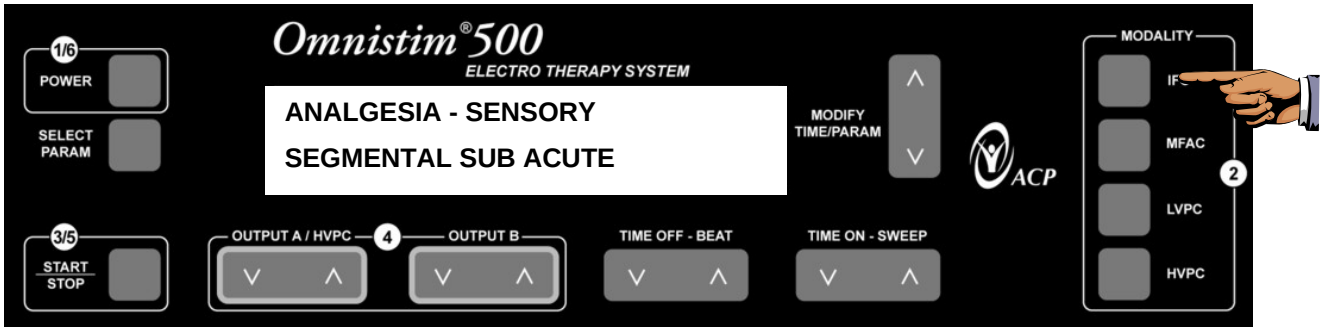
The following procedure can be used when the treatment protocols are going to be used as pre-set in the unit, and when there is no need to modify the pre-select parameters.

SELECTING TREATMENT MODALITY AND PROTOCOL:

When the POWER button is pressed, the following screen appears:



Select the desired treatment MODALITY by pressing one of the four MODALITY buttons on the far right of the **OMNISTIM**® 500. In the example below, the selection is IFC. When this button is pressed, the first protocol that appears is the ANALGESIA – SENSORY.



If the IFC button is pressed again, the treatment protocols for that MODALITY (IFC) are displayed. The protocols available under IFC are: ANALGESIA – SENSORY, ANALGESIA – MOTOR, ANALGESIA/MOTOR – SENSORY, ANALGESIA SENSORY – MOTOR, ANALGESIA NERVE BLOCK, and CUSTOM.

At this time, position the electrodes on the treatment site and connect the electrodes to the lead wires.

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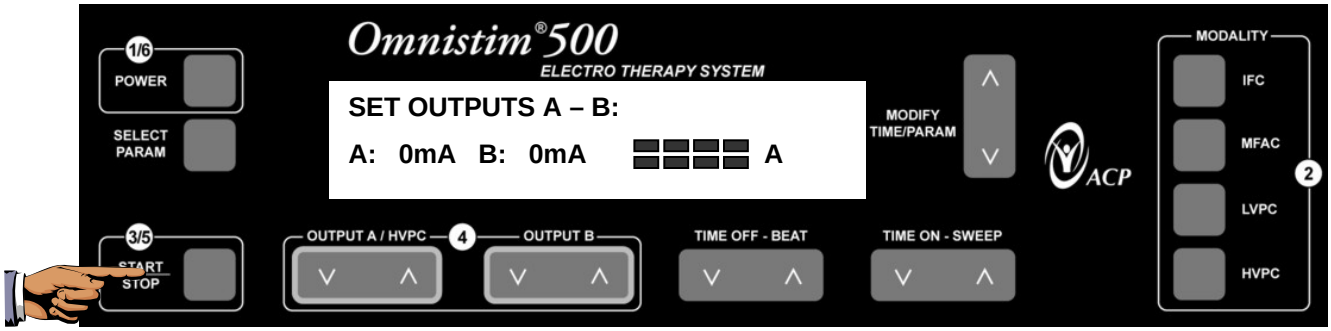
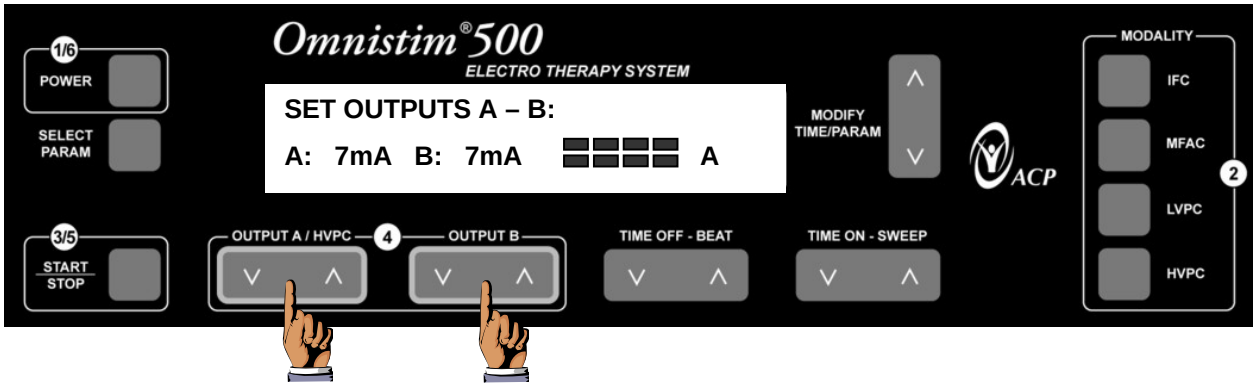
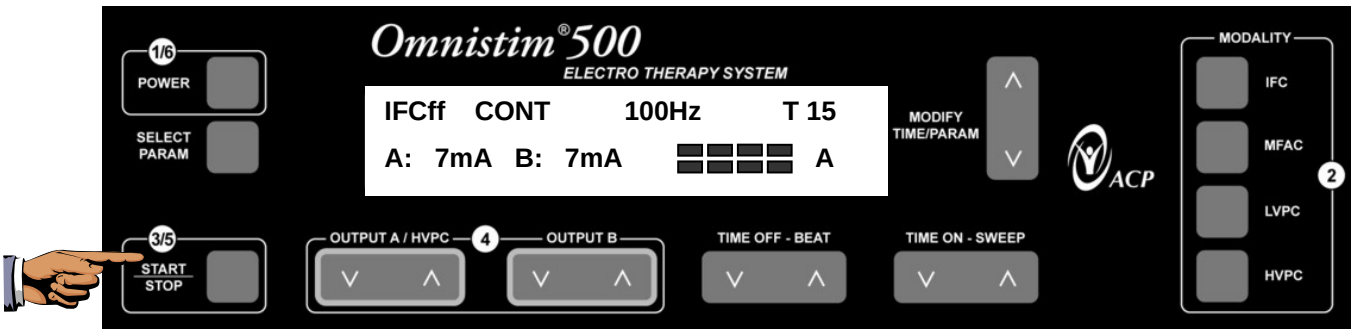
Once the desired protocol is selected (in the example below, the selection is ANALGESIA – SENSORY), press the START/STOP button. The following screen is displayed:



Adjust the output intensity by using the UP or DOWN buttons for OUTPUT A and OUTPUT B, as shown below:



When the desired output intensity is selected based on patient sensation, press the START/STOP button to initiate the treatment. The following screen will be displayed. The treatment timer has started to count down at this point (top right part of the screen). The protocols are displayed on the top line. Second line displays the treatment output levels for both channels as well as the ON/OFF time operation (bars on the right side of display).



The timer in the upper right portion of the screen will continue to count down the treatment duration. Any parameters, including output intensity and treatment time, can be adjusted during the treatment.

NOTE: *Special care should be taken if parameters are adjusted during treatment. Output intensity on both channels should be decreased first prior to adjusting other parameters in order to prevent sudden changes that may result in sudden burst of output to the patient.*

Treatment will stop automatically when the treatment time counts down to zero. Treatment can also be stopped at any time by pressing the START/STOP button, or thru the use of the Patient Safety Switch. Once the treatment is completed, remove the electrodes from the patient and disconnect the lead wires from the electrodes. At this point, the unit can be turned off by pressing the power button.

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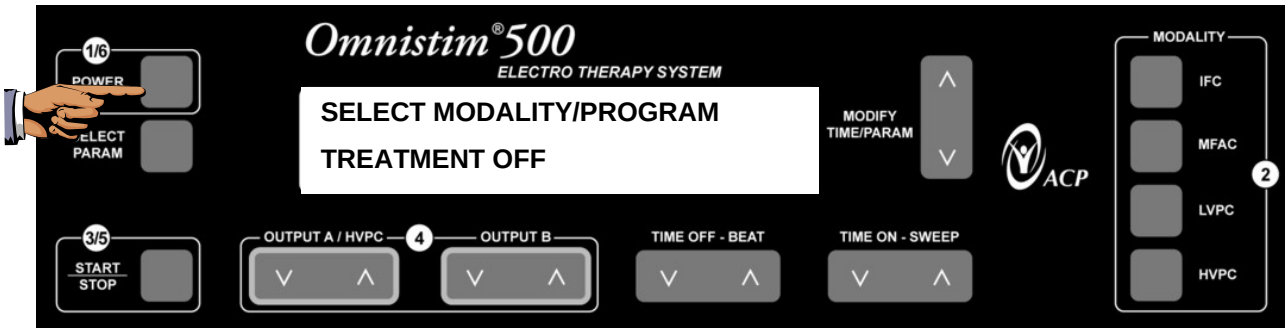
Detailed Operational Sequence

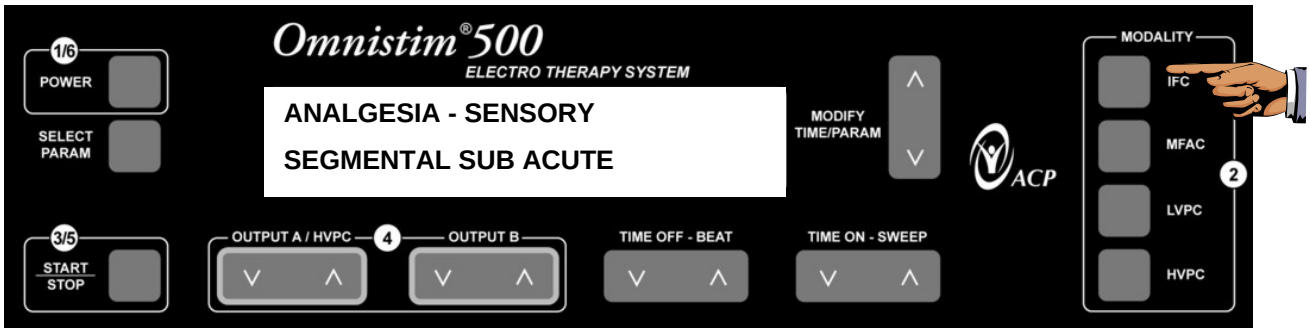
Follow this procedure for detailed instructions on adjusting parameters for selected treatment protocols.

SELECTING TREATMENT MODALITY AND PROTOCOL:

When the POWER button is pressed, the following screen appears:



Select the desired treatment MODALITY by pressing one of the four MODALITY buttons on the far right of the **OMNISTIM**® 500. In the example below, the selection is IFC. When this button is pressed, the first protocol that appears is the ANALGESIA – SENSORY.



If the IFC button is pressed again, the treatment protocols for that MODALITY (IFC) are displayed. The protocols available under IFC are: ANALGESIA – SENSORY, ANALGESIA – MOTOR, ANALGESIA/MOTOR – SENSORY, ANALGESIA SENSORY – MOTOR, ANALGESIA NERVE BLOCK, and CUSTOM.

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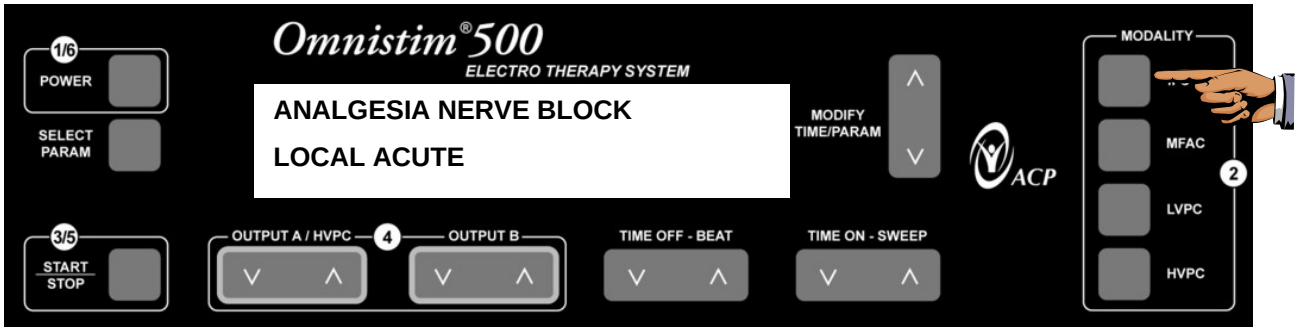
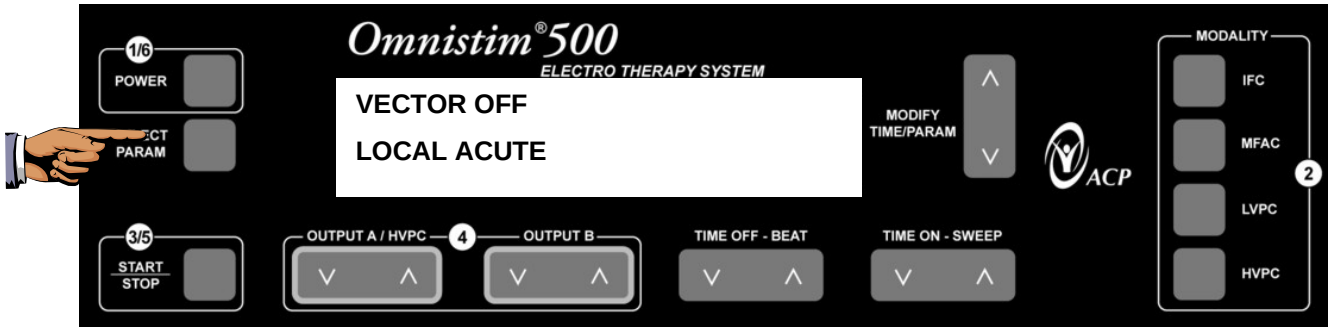
ADJUSTING PARAMETERS FOR A SELECTED TREATMENT PROTOCOL:

Once the modality and treatment protocol have been selected, the parameters for that treatment protocol can be adjusted by following the instructions below:

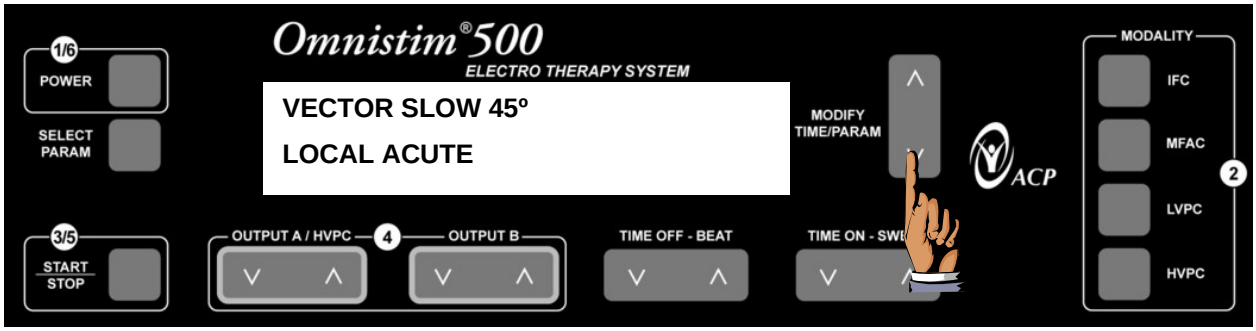
In the example below, the ANALGESIA NERVE BLOCK protocol was selected within the IFC modality.



To adjust the parameters for the treatment protocol, press the SELECT PARAMETERS button. The first parameter is the VECTOR. The default setting is OFF, as shown below:



Press the UP or DOWN arrows to adjust the VECTOR setting. The VECTOR can be set to the following: OFF, FAST 90º, SLOW 90º, FAST 45º, and SLOW 45º.



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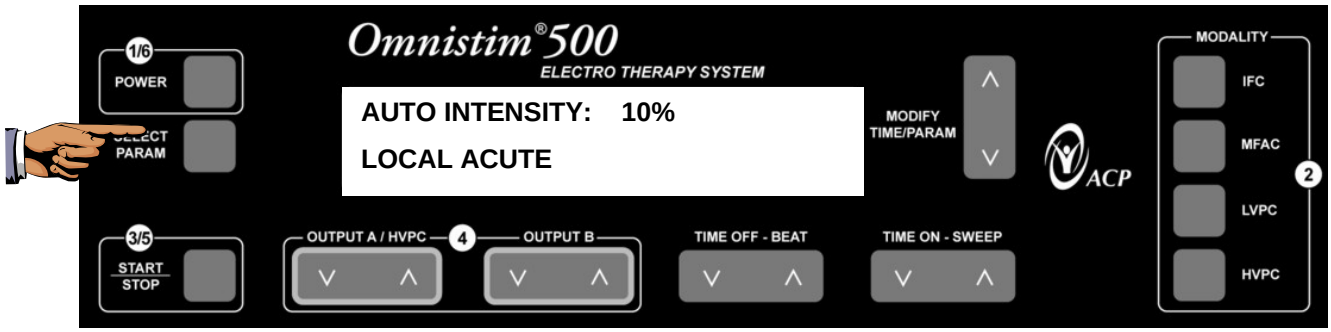
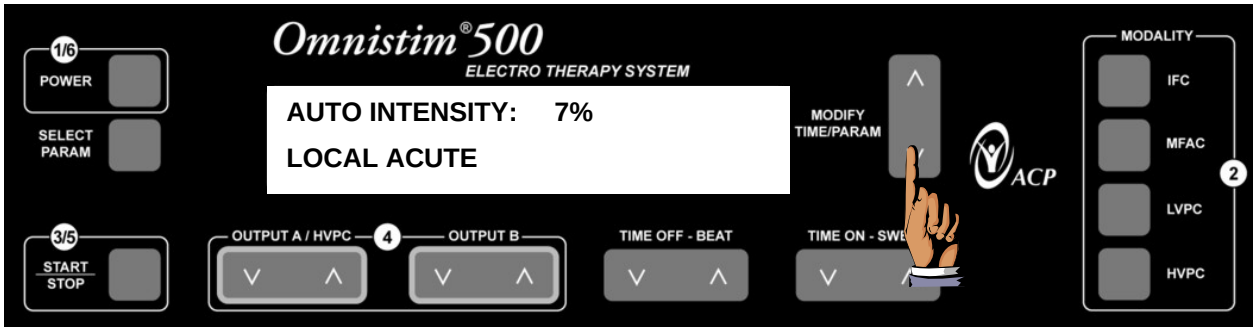
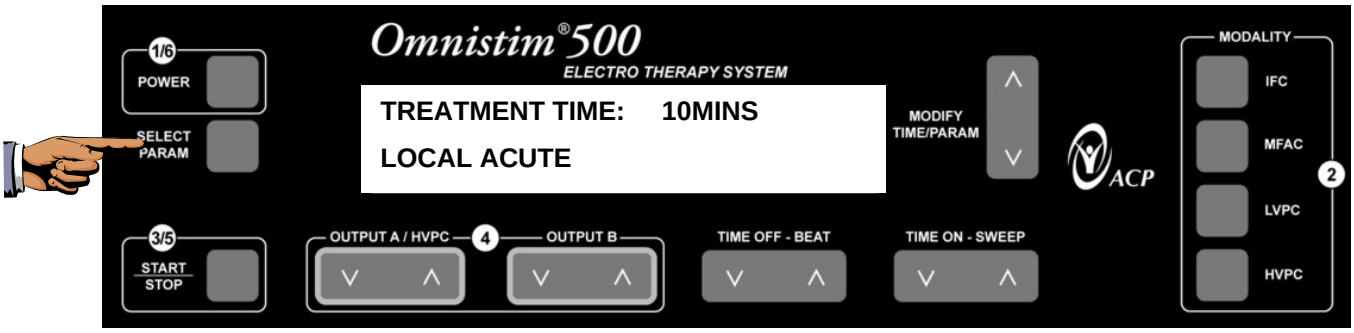
Press the SELECT PARAMETERS button again to advance to the next parameter. The next parameter is the AUTO INTENSITY. The default setting is 10% as shown below:



Press the UP of DOWN arrows to adjust the AUTO INTENSITY setting. The AUTO INTENSITY can be adjusted from 0% to 20%.



Press the SELECT PARAMETERS button again to advance to the next parameter. The next parameter is TREATMENT TIME. The default setting is 10 MINS, as shown below:



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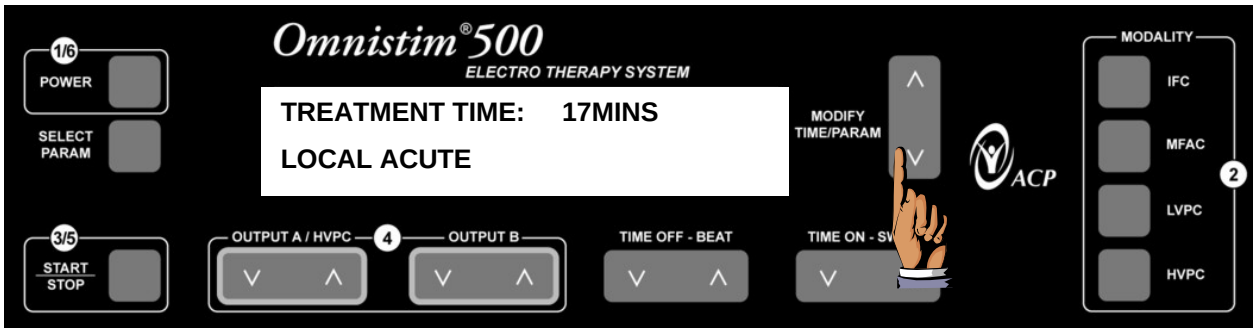
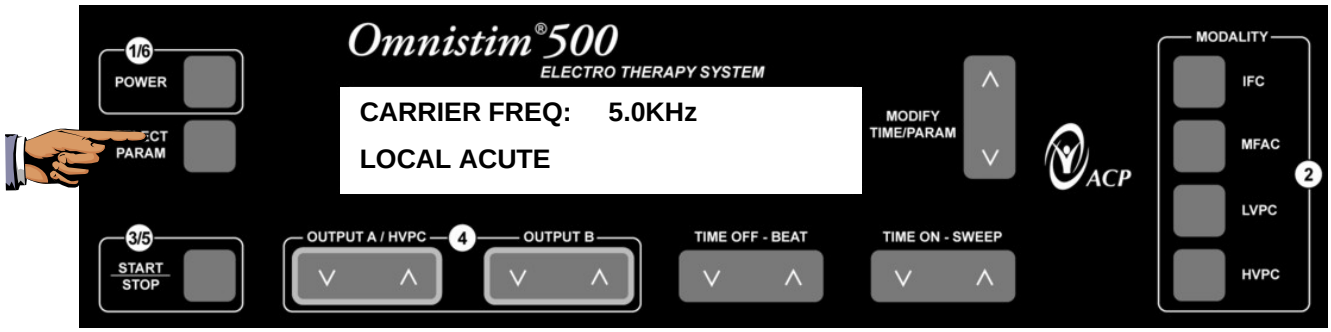
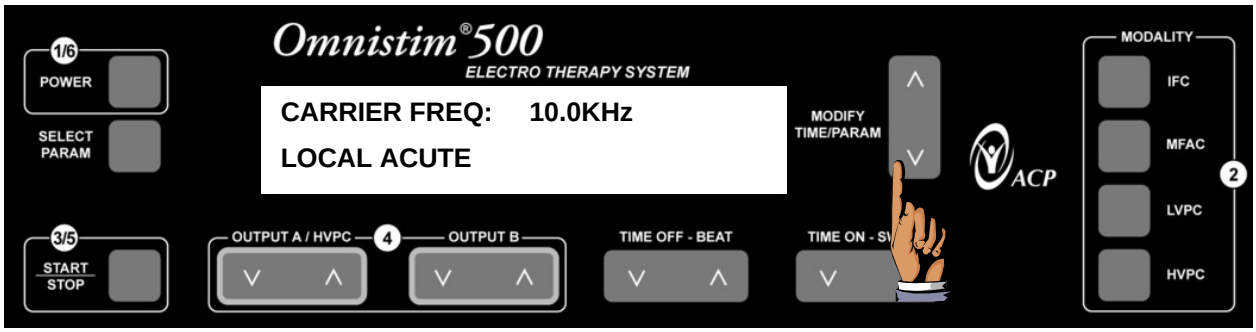
Press the UP or DOWN arrows to adjust the TREATMENT TIME setting. The TREATMENT TIME can be adjusted from 0 MINS to 99 MINS.



Press the SELECT PARAMETERS button again to advance to the next parameter. The next parameter is the CARRIER FREQ. The default setting is 5.0 KHz, as shown below:



Press the UP or DOWN arrows to adjust the CARRIER FREQ setting. The CARRIER FREQ can be set to the following values: 5.0 KHz and 10.0 KHz.



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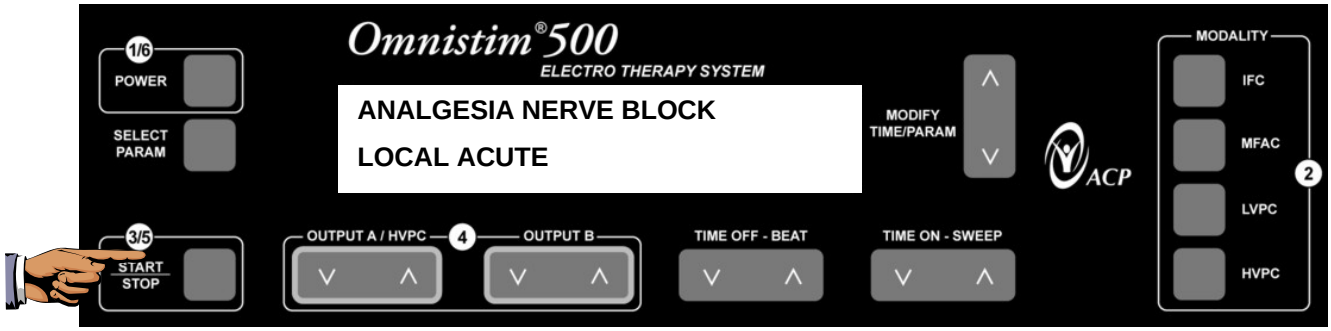
SETTING TREATMENT OUTPUTS:

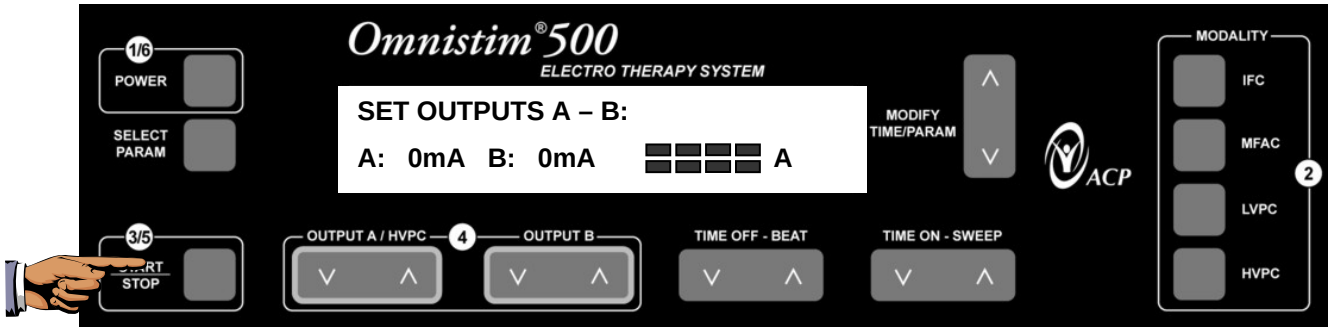
Once the protocol has been selected, the parameters adjusted per treatment requirements, and the electrodes placed on the patient, the treatment outputs can be adjusted per the directions below

Once the parameters are adjusted, press the START/STOP button once. The display, depending on the length of time lapsed from parameter adjustment to pressing the START/STOP button, will show one of the two following screens:

1. If the START/STOP button is pressed immediately after parameter adjustment, the screen will show the protocol selected (in this example, ANALGESIA NERVE BLOCK). If this screen is displayed, press START/STOP again to get to the second screen (#2 below).



2. If the START/STOP button is pressed after a few seconds delay following modifying of the protocols (5 or more seconds), or after pressing START/STOP again after the screen in #1 above, the following screen will be displayed.



NOTE: *At this point, the protocol parameters can be adjusted again, if desired. To adjust the parameters, press the SELECT PARAMETERS button until the desired parameter to be modified is displayed. Press the TIME PARAMETER UP or DOWN arrows to modify that parameter.*

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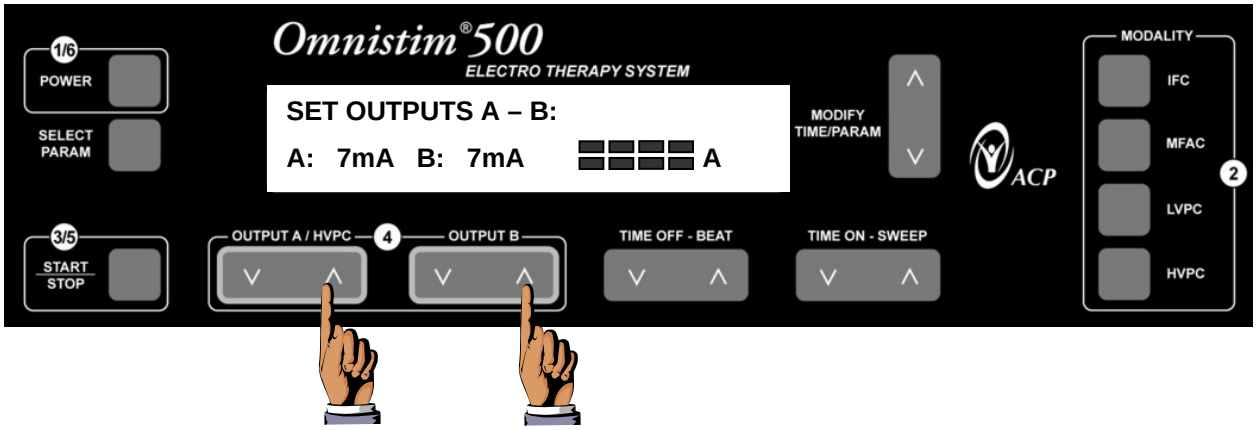
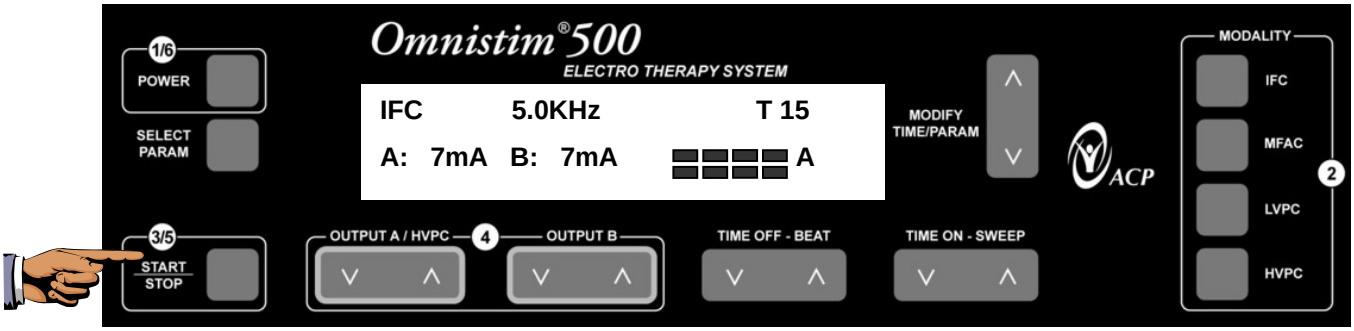
Adjust the output intensity by using the UP or DOWN buttons for OUTPUT A and OUTPUT B, as shown below:



When the desired output intensity is selected based on patient sensation, press the START/STOP button to initiate the treatment. The following screen will be displayed. The treatment timer has started to count down at this point (top right part of the screen). The protocol parameters, as modified, are displayed on the top line. Second line displays the treatment output levels for both channels as well as the VECTOR operation (bars on the right side of display).



The timer in the upper right portion of the screen will continue to count down the treatment duration. Any parameters, including output intensity and treatment time, can be adjusted during the treatment.

NOTE: *Special care should be taken if parameters are adjusted during treatment. Output intensity on both channels should be decreased first prior to adjusting other parameters in order to prevent sudden changes that may result in sudden burst of output to the patient.*

Treatment will stop automatically when the treatment time counts down to zero. Treatment can also be stopped at any time by pressing the START/STOP button, or thru the use of the Patient Safety Switch. Once the treatment is completed, remove the electrodes from the patient and disconnect the lead wires from the electrodes. At this point, the unit can be turned off by pressing the power button.

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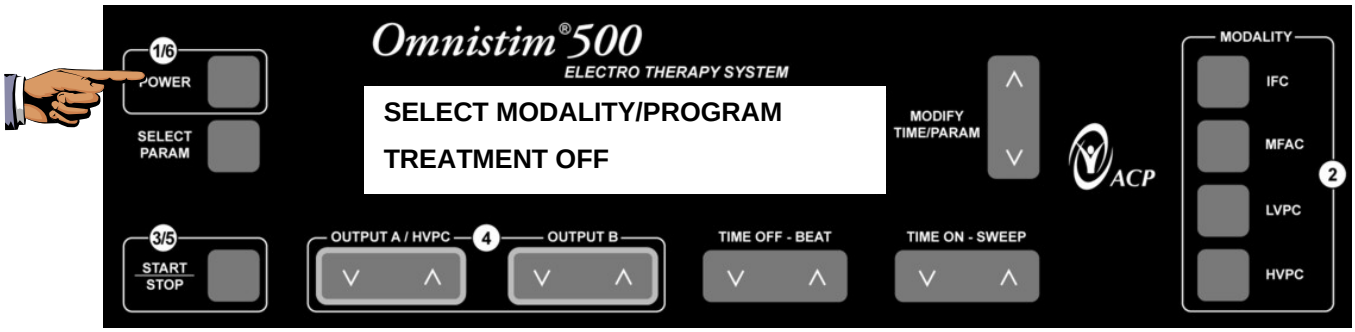
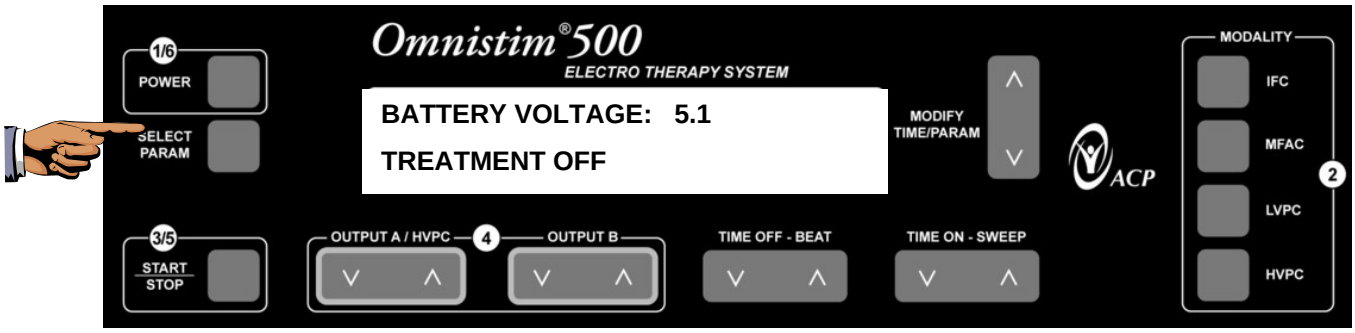
Adjusting Global Factory Settings

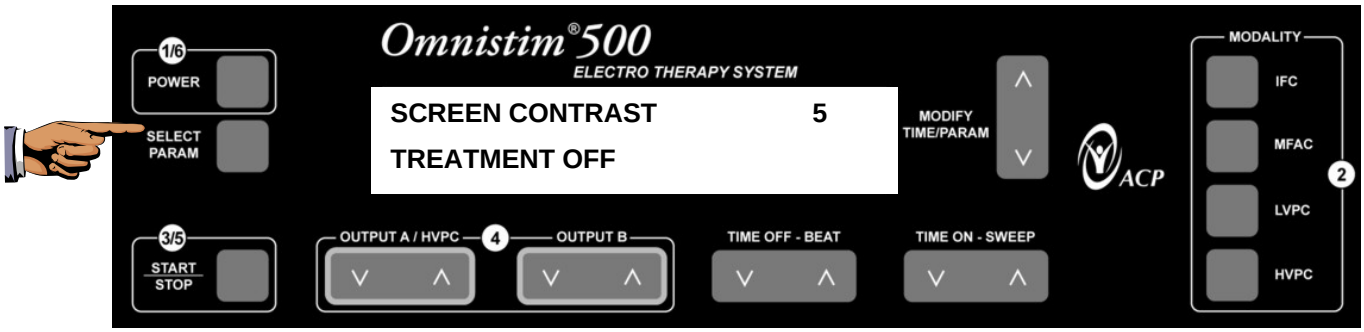
When the POWER button is pressed, the following screen appears:



Press SELECT PARAMETER button. The BATTERY VOLTAGE parameter will appear, as shown below. This screen is for informational purposes and cannot be adjusted.



Press SELECT PARAMETERS button again to advance to the next setting. The SCREEN CONTRAST parameter will appear. The default setting is 5, as shown below:



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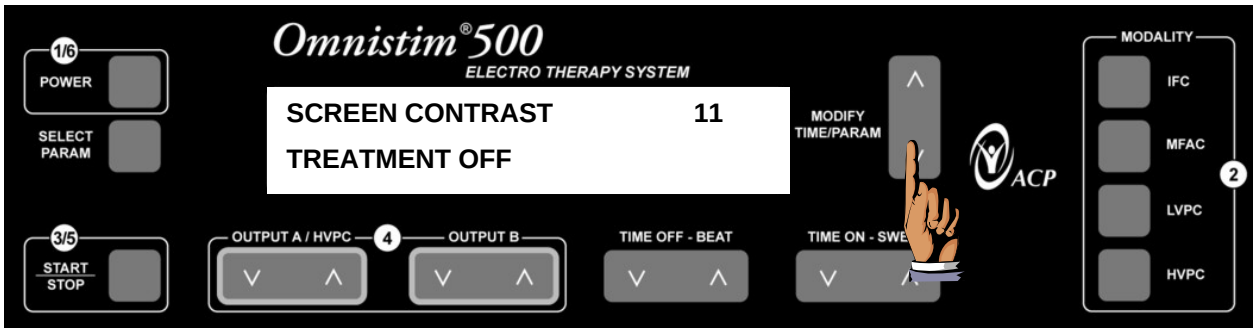
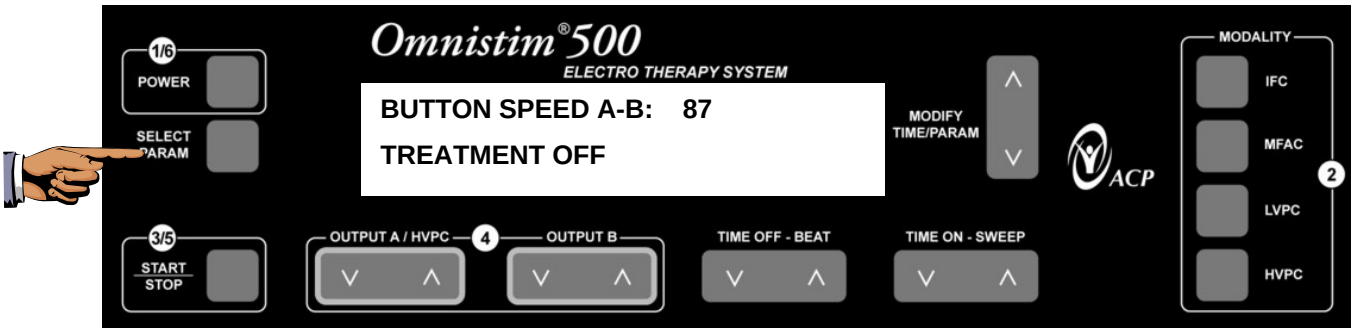
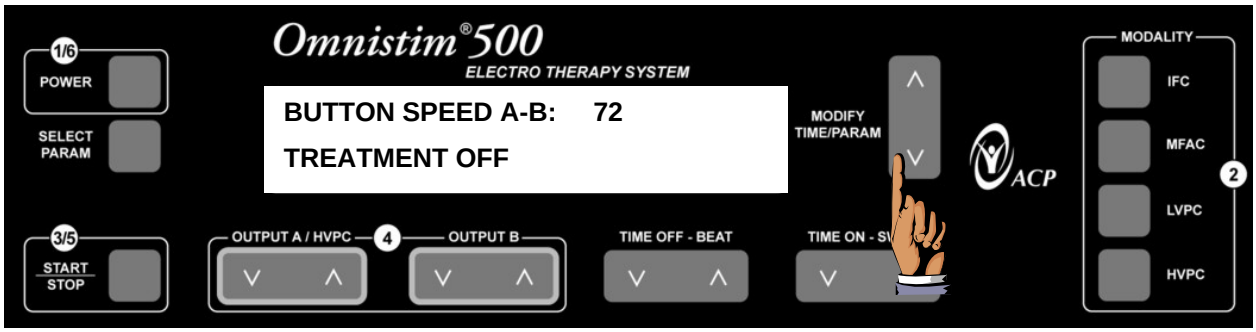
Adjust the SCREEN CONTRAST setting by pressing the UP or DOWN arrow buttons, as shown below. The SCREEN CONTRAST setting can be adjusted from 0 to 50.



Press SELECT PARAMETERS button again to advance to the next setting. The BUTTON SPEED A-B parameter will appear. The default setting is 87, as shown below:



Adjust the BUTTON SPEED A-B setting by pressing the UP or DOWN arrow buttons, as shown below. The BUTTON SPEED A-B setting can be adjusted from 0 to 99.



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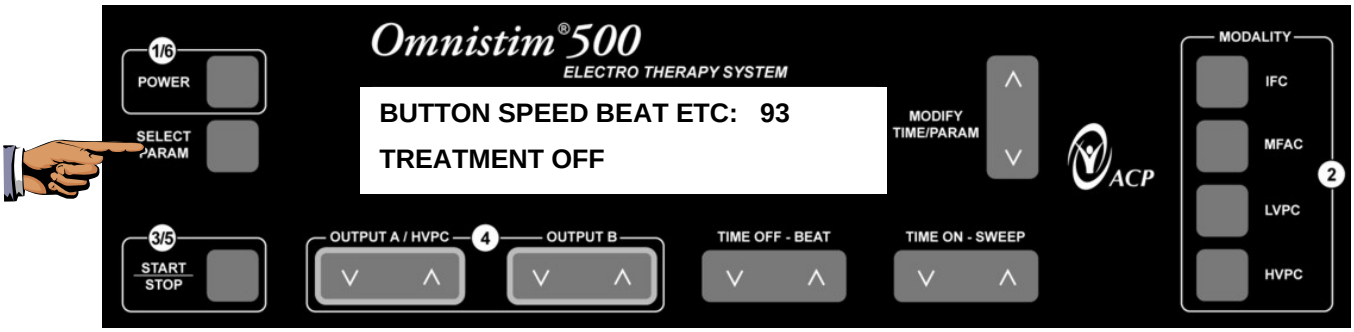
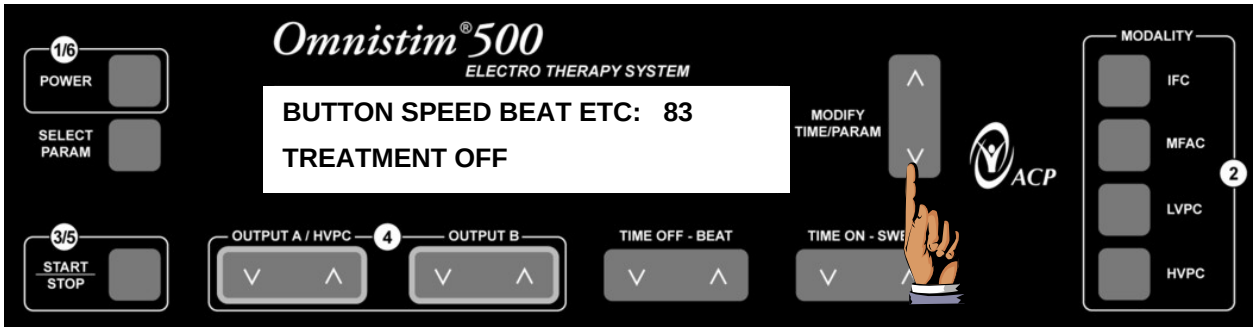
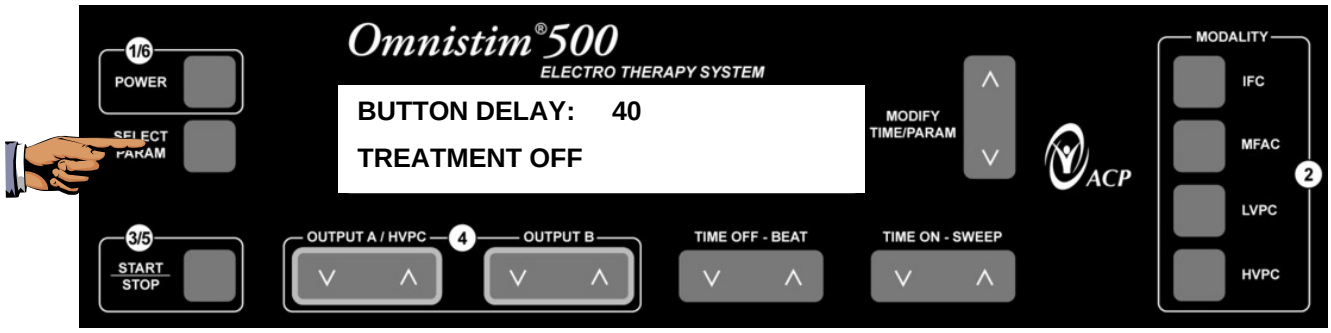
Press SELECT PARAMETERS button again to advance to the next setting. The BUTTON SPEED BEAT ETC parameter will appear. The default setting is 93, as shown below:



Adjust the BUTTON SPEED BEAT ETC setting by pressing the UP or DOWN arrow buttons, as shown below. The BUTTON SPEED BEAT ETC setting can be adjusted from 0 to 99.



Press SELECT PARAMETERS button again to advance to the next setting. The BUTTON DELAY parameter will appear. The default setting is 40, as shown below:



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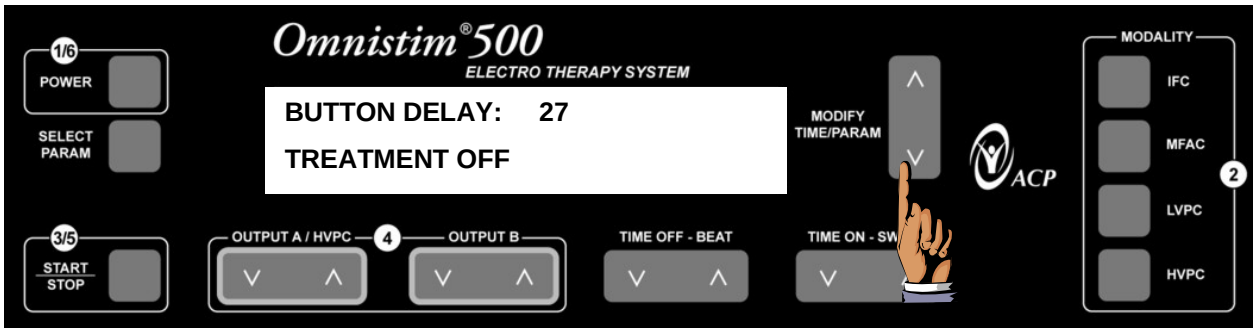
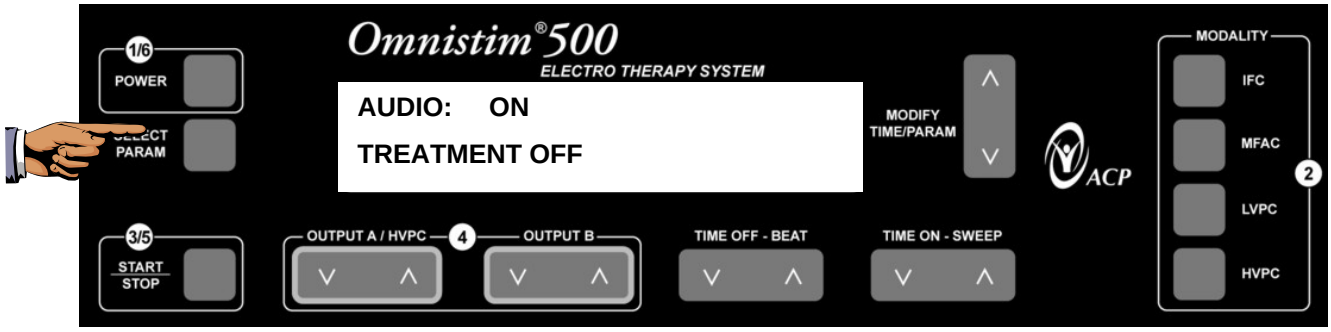
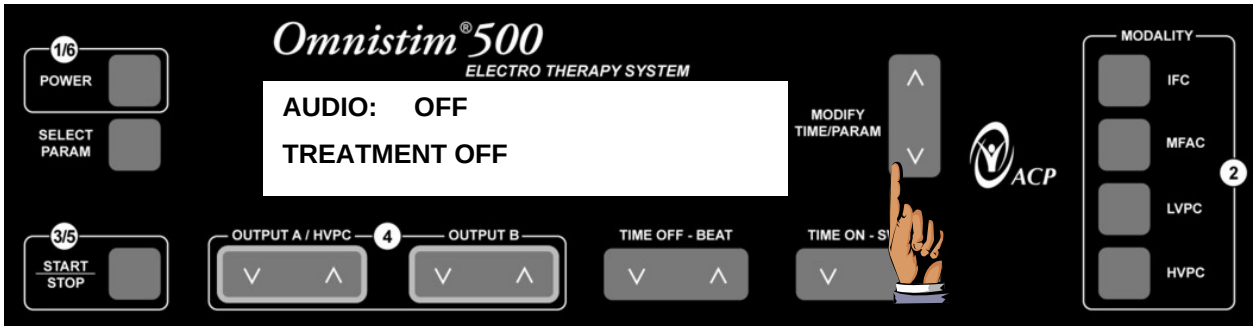
Adjust the BUTTON DELAY setting by pressing the UP or DOWN arrow buttons, as shown below. The BUTTON DELAY setting can be adjusted from 0 to 99.



Press SELECT PARAMETERS button again to advance to the next setting. The AUDIO parameter will appear. The default setting is ON, as shown below:



Adjust the AUDIO setting by pressing the UP or DOWN arrow buttons, as shown below. The AUDIO setting can be adjusted to either ON or OFF.



NOTE: *Global Factory Settings will reset to their initial default parameters if the batteries are removed or the unit is fully discharged. To restore the new settings follow the enclosed procedure.*

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